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OF THE  
ASIATIC SOCIETY OF BENGAL.

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VOL. LXI.

PART I. (HISTORY, ANTIQUITIES, &c.)

(Nos. I to IV.—1892; with 11 Plates; and an Extra-  
number with 30 Plates.)

EDITED BY

THE

HONORARY PHILOLOGICAL SECRETARY.

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“It will flourish, if naturalists, chemists, antiquaries, philologers, and men of science in different parts of *Asia*, will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish, if such communications shall be long intermitted; and it will die away, if they shall entirely cease.” SIR WM. JONES.  
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1893.



\* Bombay :—Natural History Society.

\* Bordeaux :—L' Académie Nationale des Arts.

\* ——— :—Société Linnéenne.

\* Boston :—Natural History Society.

§ ——— :—American Philological Society.

§ Brisbane :—Royal Geographical Society of Council during 1891.

† Brookville :—Society of Naturalists. Ordinary Meeting.

† Brunswick :—Verein für Naturgeschichte and Superintendent of Records, India.

† Brussels :—L' Académie Royale a proposed to publish Major Francklin's

† ——— :—Musée Royal d'Histoire Naturelle, either by the Secretary of

† ——— :—Société Entomologique.

\* ——— :—Société Royale d'Agriculture. A. Brame, his election as a member

\* ——— :—Royal Hungarian Academy of Sciences.

An offer from ——— :—National Museum, Secretary to the Trustees, Indian

† ——— :—Academia Nacional de Ciencias. A. Brame, his election as a member

† Caen :—Société Linnéenne de Normandie.

† Calcutta :—Agri-Horticultural Society of India.

\* ——— :—Geological Survey of India.

\* ——— :—Editor, Englishman.

\* ——— :—Editor, Indian Daily News.

§ ——— :—Editor, Indian Engineering.

\* ——— :—Editor, Indian Mirror.

\* ——— :—Indian Museum.

† ——— :—Mahomedan Literary Society.

§ ——— :—Photographic Society of India.

\* ——— :—Survey of India.

\* ——— :—Tuttobodhini Shova.

† ——— :—University Library.

† Cambridge :—University Library.

† Cassel :—Der Verein für Naturkunde.

† Cherbourg :—Société Nationale des Sciences Naturelles.

\* Christiania :—University Library.

\* Colombo :—Ceylon Branch, Royal Asiatic Society.

\* Copenhagen :—La Société Royale des Antiquaires du Nord.

† Cuttack :—Cuttack Library.

\* Danzig :—Naturforschende Gesellschaft.

\* Dehra Dun :—Great Trigometrical Survey.

§ Dorpat :—Naturforscher-Gesellschaft der Universität.

\* Dresden :—Entomologischen Vereins "Iris."

† ——— :—Königlichen Zoologischen und Anthropologisch-Ethnographischen Museums zu Dresden.

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r Natur und Heilkunde.  
für Styria.

Taal-Land-en v v .

- r ———— : ———— Museum zu Hamburg.
- † Halle : ———— wissenschaftlichen Verein.
- \* ———— : ———— Deutsche Morgenländische Gesellschaft.
- \* ———— : ———— Kaiserlichen Leopoldinisch-Carolinische Akademie.
- \* Hamilton (Canada) : ———— Hamilton Association.
- \* Havre : ———— Société de Géographie Commerciale du Havre.
- † Helsingfors : ———— Societas pro Flora et Fauna Fennica.
- \* ———— : ———— Société des Sciences de Finlande.
- § Ithaca (U. S. A.) : ———— Cornell University.
- § Jassy : ———— Societate Stintifică Literară.
- \* Kiev : ———— Société des Naturalistes.
- • Königsberg : ———— Die physikalische-Oekonomische Gesellschaft.
- \* Lahore : ———— Editor, Civil and Military Gazette.
- † ———— : ———— Agricultural Society.
- § Leipzig : ———— Deutsche Morgenländische Gesellschaft.
- † Leyden : ———— Royal Herbarium.
- \* Liège : ———— Société Académique de Belgique.
- † ———— : ———— Société des Sciences.
- † Liverpool : ———— Literary and Philosophical Society.
- \* London : ———— Anthropological Institute.
- \* ———— : ———— Editor, Academy.
- \* ———— : ———— Editor, Athenæum.
- \* ———— : ———— British Museum.
- \* ———— : ———— Geological Society.
- † ———— : ———— Institution of Civil Engineers.
- \* ———— : ———— Institution of Electrical Engineers.

- \* London:—Institution of Mechanical Society.
- \* ———:—Editor, *Nature*.
- \* ———:—Linnean Society.
- \* ———:—Royal Asiatic Society.
- \* ———:—Royal Astronomical Society.
- \* ———:—Royal Geographical Society.
- \* ———:—Royal Institution of *Science* OF COUNCIL DURING 1891.
- \* ———:—Royal Microscopical Society, *Ordinary Meeting*.
- \* ———:—Royal Society.
- \* ———:—Statistical Registrar and Superintendent of Records, India.
- \* ———:—Zoological reference to a proposal to publish Major Francklin's
- † Lyons:—Letter from Rajmehal to Gour, either by the Secretary of Asiatic Society was recorded.
- † ———:—The request of Captain A. Brame, his election as a member of the Society was cancelled.
- \* ———:—An offer from the Honorary Secretary to the Trustees, Indian Museum, to receive the *Statue of the Dharma* Government Central Museum.
- \* Manchester:—Literary and Philosophical Society.
- \* Mendon, Ill:—Editor, *American Antiquarian and Oriental Journal*.
- \* Mexico:—Sociedad Científica "Antonio Alzate."
- § ———:—Observatorio Meteorológico-Magnético Central.
- \* Moscow:—Société Impériale des Naturalistes.
- \* Munich:—K. Bayerische Akademie der Wissenschaften.
- \* Naples:—Società Africana d' Italia.
- \* New Haven:—Connecticut Academy of Arts and Sciences.
- § ———:—American Oriental Society.
- \* Newport (R. I. ):—Natural History Society.
- \* New York:—American Museum of Natural History.
- † Ottawa:—Geological and Natural History Survey of the Dominion of Canada.
- † Oxford:—Bodleian Library.
- † ———:—Indian Institute.
- \* Paris:—Société de Géographie.
- \* ———:—Société d' Anthropologie.
- \* ———:—Société Asiatique.
- § ———:—Revue Géographique.
- \* ———:—Musée Guimet.
- † ———:—National Library.
- \* ———:—Société Zoologique.
- \* ———:—Société Académique Indo-Chinoise.
- \* ———:—Museum d' Histoire Naturelle.
- \* Philadelphia:—Academy of Natural Sciences.



With reference to Council order that the Society's publications are now being sent to Mofussil Members as soon as published, it was decided that a similar course be followed with regard to Societies and Members in Europe.

*February 11th, Special Meeting.*

Mr. H. Ronaldson resigned the Assistant-Secretaryship of the Society in March and Mr. J. H. Elliott, the Assistant-Librarian, was appointed to officiate in addition to his own duties.

*February 26th, Ordinary Meeting.*

A letter from Mr. E. M. Thompson, of the British Museum, conveying the special thanks of the Trustees to the Government of the Central Provinces, and the Asiatic Society of Bengal for the valuable addition to the Museum collections of the Treasure Trove Gold Coins from Hoshangabad was recorded.

Permission was given to Dr. J. H. Tull Walsh to bring forward his proposal, that two sections be formed, and that these sections meet on separate evenings.

The Secretary, Punjab Library, Lahore, was informed in reply to his application that the publication of the Lepidoptera had been completed in 3 parts, and that it was not the custom of the Society to present copies except in exchange.

It was ordered to subscribe to one copy of the monthly periodical entitled "North Indian Notes and Queries."

The various Committees for the ensuing year were elected.

It was decided not to take any further steps regarding the payment of subscriptions annually in advance and the procedure for collecting arrear subscriptions.

On the recommendation of the Library Committee, several books were ordered to be purchased for the Library.

On the recommendation of the Natural History Secretary, an exchange of Part II of the Journal for the publication of the Museo Civico di Storia Naturale, Trieste, was sanctioned.

The first part of a Catalogue of Oriental Diptera prepared by Mons. Bigot at the request of the late Mr. Atkinson, submitted by the Natural History Secretary, was ordered to be read at the next monthly meeting.

On the recommendation of the Finance Committee, it was agreed to circulate to Resident Members that the permission given to invest Rs. 50,000 in Municipal or Port Trust Debentures, be extended, with a view to include the alternatives of fixed deposits in Calcutta Banks.

The Cashier was granted, as a special case, half pay for 35 days absence on sick leave.

The Copyist was granted an increase of pay of three rupees for the present year and two rupees for the following year.

*March 4th, Special Meeting.*

It was decided to issue a circular requesting members to record their votes on the proposed withdrawal of the sum of Rs. 50,000 from the Government 4 per cent. loan and on the mode of re-investment.

*March 26th, Ordinary Meeting.*

Read a letter from Messrs. Trübner and Co. offering to return the bulk of the Society's publications in stock, and suggesting that it would be better to regard all goods supplied to them as actually sold with the reservation that they may, upon return of a certain percentage of copies, obtain credit on settlement. It was resolved to ask Messrs. Trübner and Co. for further particulars as to the number of copies of specified publications they are prepared to receive and the proportion they wish to have the right of returning, and after what interval of time.

It was ordered that the Indian Museum be charged with the cost price for the printing of the extra copies of the late Mr. Atkinson's Catalogue of the Insects of the Oriental Region.

A report from the Philological Secretary on four Treasure Trove Coins found in the Hardoi District, was ordered to be read at the next monthly meeting.

Dr. Hoernle returned from furlough and relieved Mr. Tawney of the Philological Secretaryship to the Society.

The accounts of the Society for 1890 were audited by Messrs. Meugens and King.

*April 30th, Ordinary Meeting.*

In reply to Dr. J. Anderson's letter complaining of the non-receipt of some of the Society's publications, he was informed that the numbers missing were sent along with other publications of the Society which appeared to be amongst his numbers.

In reply to Kumar Rameswar Maliah's letter proposing that the Bibliotheca Indica series should be distributed to the members with the Society's Journal, he was informed that his proposal could not be entertained.

Dr. Walsh was asked to accept a seat on the Council of the Society in the place of Dr. Cunningham, who had resigned, owing to his approaching departure for Europe.

Dr. Cunningham's resignation as a Trustee of the Indian Museum on behalf of the Society was not accepted.

With regard to the publication of the Oriental Publication Fund, the following resolutions were passed :—

“The Secretary to write a letter to the Editors informing them that the funds in hand were insufficient to carry on publications at the present rate and requesting them to send no more manuscript to the press during the present year, except in accordance with instructions to be furnished them; and to the Printers asking them to finish the forms in hand and to set up no more until further instructions.”

“Government Promissory Notes for Rs. 2,000 of the Sanskrit Manuscript Fund may be sold and the amount advanced to the Oriental Publication Fund to pay the Baptist Mission Press for printing the *Bibliotheca Indica*.”

“The sum of Rs. 50 sanctioned by Council for a Tibetan Pandit to assist Bábu Pratapa Chundra Ghosha, be discontinued from the commencement of the ensuing month.”

In the evening of the 28th of May, a proposal to place Rs. 50,000 in fixed deposit in Calcutta Bank, the same proposal to place Rs. 50,000 in fixed deposit in Calcutta Bank not being declared carried at the next General Meeting, the Council agreed to recommend that the proposal to invest the money in Municipal Debentures be circulated for the votes of the general body of members.

#### *May 28th, Ordinary Meeting.*

The name of Rev. H. Baker, a corresponding member of the Society, was removed from the list of members, as he had died many years ago.

An offer from Messrs. Trübner and Co. to receive 10 numbers of *Bibliotheca Indica*, 30 of the Journal and 20 of the Proceedings with the reservation to have the right of returning 10 per cent. of the copies ordered, was accepted. With regard to back stock it was decided that they be asked how much there still remained unsold.

In reply to an offer by Major J. H. Sadler to bring out an edition of the commentary of Sheikh Badr-uddin on the *Alfizzah* of Ibn Malik, it was explained that the present condition of the Oriental Publication Fund admitted of no new works being undertaken for 3 years.

Dr. Walsh's acceptance as a Member of Council was ordered to be announced at the next monthly meeting.

Intimation of the death of Mr. G. W. Baumgarten of Batavia, a member of the Society, was ordered to be recorded in the Proceedings.

A paper by Mr. H. J. Rainey entitled “a short note on a strange fiery hot-blast in the District of Khulna,” was ordered to be read at the next monthly meeting.

Permission was granted to circulate to the general body of members

the proposal regarding the re-investment of Rs. 50,000 in Municipal Debentures.

Bábu Pratapa Chandra Ghosha was allowed to exchange certain numbers of the *Bibliotheca Indica*.

*June 25th, Ordinary Meeting.*

An offer to exchange publications from Mr. C. L. Herrick, forwarded with the first number of the *Journal of Comparative Neurology* was declined.

Sanction was given to Dr. P. Horn to purchase certain works of the *Bibliotheca Indica* at a reduction of 50 per cent.

In reply to Mr. A. Constable's letter expressing his willingness to undertake the publication of one or two volumes of "Selections" from the records of the Society, he was informed that the Council were willing to entertain his proposal regarding the selections but would desire to be furnished with details and to know whether it would be entirely at his own expense.

An offer from Mr. A. Constable to act as Agent in London for the Society was declined.

On the recommendation of the Natural History Secretary sanction was accorded to an exchange of publications with the *Société Linnéenne de Normandie*.

An offer from Grossh Badische Universitäts-bibliothek, Heidelberg, forwarding the first number of "*Neue Heidelberger Jahrbucher*" and asking for an exchange of publications was declined.

Presentation of a small book and pamphlet entitled "*Memoirs of Tahmasp*" by Dr. P. Horn, was acknowledged, with thanks.

An application from the Cashier for an increase of pay was refused.

*July 11th, Special Meeting.*

It was decided that instructions be given to the Bank of Bengal to purchase Municipal Debentures to the nominal value of Rs. 50,000 as opportunities arise, and to sell out from time to time from the invested funds of the Society, Government paper sufficient to pay for such purchases as they are made. Preference should be given to Municipal Debentures of longest currency.

*July 30th, Ordinary Meeting.*

In reply to Mr. C. J. Rodger's letter suggesting that the coin collection of the Society should be amalgamated with that at the Indian Museum with a view of cataloguing and arranging them, he was informed that the Council had decided to wait until the Catalogue of coins

in the Indian Museum had been completed so that the two collections might be compared.

A letter from the Under-Secretary to the Government of India, Home Department, enquiring whether any person connected with the Society would be willing to continue the researches so ably begun by Lt.-Col. Godwin-Austen "On the Land and Fresh Water Mollusca of India," was ordered to be read at the next monthly meeting.

A letter from Mr. A. Constable submitting certain suggestions and queries regarding the publication of "Selections" from the records of the Society, was deferred till next meeting.

In reply to Mr. Rivett-Carnac's letter asking for the loan of a gold Gupta coin, he was informed that in accordance with the practice of the Society, unique coins are not sent out from the Society's possession.

On the death of Rájá Rajendralála Mitra, the following resolution was passed :—

"The Council desire to place on record their deep sense of the very great loss the Asiatic Society of Bengal and Oriental Learning have sustained by the death of their former President and Vice-President Rájá Rajendralála Mitra and to express their great sorrow at the sad event that has deprived the Society of a most learned and distinguished supporter, who has been closely connected with it for nearly half a century; and the Council of a much esteemed colleague."

It was ordered that a copy of the Resolution be forwarded to Dr. Mitra's son with a letter of condolence signed by all the members of Council.

Presentation of a paper entitled "Die Vikrama Aera" by Professor F. Kielhorn was acknowledged, with thanks.

The purchase of a so-called "Idol-Car" from Babu Taruk Nath Roy for the Society was sanctioned.

It was decided to ask Mr. Tawney to represent the Society as a delegate at the Ninth International Congress of Orientalists to be held in London in 1892.

In consequence of Dr. Mitra's death, Pandit Haraprasad Shastri was invited to carry on the duties of the Sanskrit MS. Fund.

On the recommendation of the Philological Secretary's sanction was given to send "Mahit Sarakhri" an Arabic manuscript, to Moulvie Syed Suddudhin Ahmed.

Read a letter from the Punjab Government enquiring whether the Society could place them in communication with any capable numismatist who would be able to value Mr. Rodger's collection of coins. It was resolved to inform the Punjab Government that Dr. Hoernle was willing to do the work provided his expenses were defrayed.

*August 27th, Ordinary Meeting.*

On the recommendation of the Philological Secretary, it was ordered that all the available numbers of the Bibliotheca Indica and the future numbers as published be presented to the Oriental Seminary of the Bonn University.

A letter from the Deputy Secretary and Treasurer, Bank of Bengal, stating that neither  $4\frac{1}{2}$  per cent. nor 5 per cent. Calcutta Municipal Debentures are procurable in the market, was recorded.

The Council approved the Philological Secretary's suggestion to send to Mrs. Marx and the Rev. Dr. Dalman copies of both papers by the late Dr. Karl Marx of Leh Ladakh.

*September 24th, Ordinary Meeting.*

Dr. Hoernle was allowed to have the reserve copy of fasc I of Nitisara to complete his volume.

The Council approved the recommendation of the Finance Committee to purchase the 2nd Vol. of Cesnola's Cypriote Antiquities, price £10/10 for the Library.

An obituary notice of the death of Dr. Barclay was ordered to be read at the next monthly meeting.

Pandit Hārāprasād Shastri received an advance of Rs. 1,000 for the probable purchase of manuscripts at Benares.

*October 29th, Ordinary Meeting.*

Brefeld's Mykologie, price Rs. 50, was ordered to be purchased for the Library.

Mr. W. Theobald was informed, in reply to his letter, that the charge for printing his extra copies supplied in addition to the author's copies, was according to the usual rate.

An application from Mr. J. C. R. Johnstone asking on behalf of the Calcutta Musical Association for permission to be allowed to hold their meeting in the Society's room was declined.

*November 26th, Ordinary Meeting.*

It was ordered to supply the Secretary, Anthropological Society of Vienna, with the vols. of the Asiatic Researches and the Society's Journals asked for.

On the recommendation of the Philological Secretary, one copy of a History of the Sects of the "Ismailies" was ordered to be subscribed for.

Permission was given to Dr. Waddell to take out of the Library the two vols. of the Ajaṇṭa plates and Cunningham's "Stupa of Bharhut."

Permission was given to Babu P. C. Mookerjee to take out certain Library books, the Superintendent of the Indian Museum being responsible for their return.

On the proposed arrangement of Pandit Hara Prashad Shastri for conducting the operations in search of Sanskrit MSS. in Bengal the following orders were passed :—

I. The Office of Sanskrit MSS. be removed to the Asiatic Society's Rooms.

II. A gratuity of a year's pay be granted to Babu Upendra Lala Mitra on his retirement.

III. One Resident Pandit be appointed on Rs. 20 permanently.

IV. A second travelling Pandit be appointed on Rs. 30 up to 31st March 1893.

V. Pandit Ram Nath Tarkaratna be requested to explain why he did no work for  $2\frac{1}{2}$  years.

#### *December 31st, Ordinary Meeting.*

On the recommendation of the Philological Secretary one copy of each of the publications of the Oriental Translation Fund was ordered to be subscribed for.

The appointment of a temporary clerk on Rs. 30 for 6 months to catalogue the Library Books received during the years 1885-1890 was sanctioned.

The Council sanctioned the appointment of a clerk on Rs. 15 for the Store-room, if found necessary.

Dr. Hoernle's resignation as Philological Secretary and Member of Council was accepted and Mr. C. R. Wilson appointed in his place, Dr. Hoernle retaining the numismatic work. It was ordered that Mr. Wilson's name be substituted for Dr. Hoernle's at the next monthly meeting.

Dr. Walsh was appointed Natural History Secretary and Editor of Journal Part II in the place of Mr. Sclater resigned.

The lists of Office Bearers and Members of Council for the ensuing year were approved.

Intimation was received from the Superintendent of Stamps and Stationery that the Secretary of State for India had ceased to subscribe for 40 copies of each of the Society's publications from the commencement of 1892. It was decided to ask for a copy of the instruction under which the letter was written.

On an application from Lady Frankfort, permission was granted to hold an ambulance class for Ladies in the Society's room every Thursday between 12 noon and 1 P. M.

The Report having been read the President invited the meeting to put any questions or to offer any remarks which any member might think necessary in connection therewith.

No remarks having been offered the President moved the adoption of the report, and proposed a vote of thanks to the Honorary Secretaries and Treasurer for their exertions in behalf of the Society.

The motion was carried unanimously.

The PRESIDENT then addressed the meeting.

## ADDRESS.

The Report of the Council which has just been read supplies full information as to the working of the Society in 1891, and I think it may be regarded as fairly satisfactory. Compared with the previous six years, the figures for the last six show, it is true, a steadily downward tendency in the number of paying members; but this decline seems for the present to have been arrested, as the average number for the three years 1889 to 1891 is at any rate slightly higher than that of the previous three. However much this decline in the number of members from decade to decade may be regretted, it need cause us no surprise. The strain and pressure of official duties in India increase year by year; and the majority of public servants in this country find little leisure for the cultivation of those sciences and the pursuit of those researches which it is the object of this Society specially to foster. There is happily no diminution in the supply of papers read before the Society, or in their interest and value; but a Society constituted as this is lives not only by the papers read but by the subscriptions paid; and it is vitally affected by any cause that tends to reduce the number of those who, feeling a general interest in what has been performed by man or produced by nature within the continent of India, would naturally seek admission to our Society if fuller opportunities for stimulating that interest were afforded them in their daily life and work. But this is an old complaint, and one which it is beyond our power to mend.

### Obituary.

The Society has lost several valued members by death during the past year.

RAJA RAJENDRALALA MITRA, C. I. E., was a scholar of European fame. His connexion with this Society extended over a period of nearly half a century. Entering it, when a young man, as Assistant Secretary and Librarian, his commanding abilities and untiring industry soon brought him into prominence; and while we may congratulate ourselves that it



was this Society which first gave him the opportunity of satisfying his inexhaustible craving for knowledge, we must gratefully admit that he has amply repaid the debt by the contributions that he has made to Oriental learning, and by the lustre that his name and attainments have shed upon the Society, of which he was one of the most distinguished in the long roll of Presidents. When the Centenary Review of the Researches of the Society was in preparation in 1883, Dr. Rájendra-lála Mitra was at once selected as the man to write its history. It was an appropriate and happy choice, and the duty laid upon him and cheerfully undertaken was admirably discharged. His eminence in the field of learning was recognised by the University of Calcutta, which conferred upon him the honorary degree of Doctor in Law, and by Her Majesty the Queen Empress, who admitted him to the Order of the Indian Empire. But his most enduring title to fame lies in the work which he has done, the extent and solidity of which are acknowledged, not only within the walls of this Society, or even in India, but wherever the civilised world Oriental scholarship is valued.

SURGEON MAJOR A. BARCLAY was a man whose premature death was a heavy loss to that distinguished service of which he was one of the most prominent members, and whose honour and interests he had ever at heart. A man of wide and varied cultivation and untiring energy, it was to the study of parasitic fungi that he devoted his special attention; and the scientific world knows well the value of the contributions that he made to that obscure and important subject, not merely in advancing the bounds of our theoretical knowledge, but in suggesting remedies for some of the most dangerous and destructive pests of both animal and vegetable life. His kind and gentle disposition endeared him to all who had the privilege of his friendship.

JOHN BOXWELL had been a member of our Society for 23 years. Amid the engrossing occupations of a Magistrate and a Commissioner in Bengal, he gave up his rare moments of leisure to the literature of India and the traditions of her people. The character of his learning was varied: he knew the Rig Veda, and he knew the fairy tale; but unhappily the hand of death removed him before he could enshrine the results of his studies in any permanent form. But

"The world which credits what is done,

Is cold to all that might have been,"

and so he has missed the fame which otherwise might have been his. He was a man of a singularly winning and simple nature; and the cross that marks his grave at Dacca fitly describes him as one *cum doctrina tum moribus exornatus*.

COLONEL SIR OLIVER B. ST. JOHN, K. C. S. I., R.E., was another worker

whose loss we have to deplore. As Major St. John, Director of the Anglo-Persian Telegraph in 1869-71, he made an extensive collection of zoological specimens chiefly belonging to the Vertebrata, and at the same time kept copious notes of the Fauna. He subsequently contributed largely to the collection brought together by Mr. W. T. Blanford, F. R. S., who accompanied him on the Persian Boundary Commission in 1872. These collections formed the materials for Blanford's work on the Zoology of Persia (Eastern Persia, vol. II), in the preparation of which Major St. John's notes on the Fauna proved of essential service. To the account of the journeys of the Commission (Eastern Persia, vol. I) Major St. John contributed a brief but valuable sketch of the physical geography of Persia, together with an interesting itinerary, in every page of which the ardent naturalist is apparent.

The financial position of the Society, which at one time gave cause for apprehension, is now approaching a very satisfactory state. The Society is more than Rs. 3,000 better off at the beginning of the current year than it was at the beginning of 1891; the balance in favour of the Society, including the invested securities, having advanced from Rs. 1,37,612 to Rs. 1,40,750, which is higher than it has been at any time since 1887. The report supplies full details of the manner in which this improvement has been effected. Our receipts have been better and our expenditure has been less than in the previous year, the savings having been chiefly effected under the heads of establishment and printing. I should add that only a trifling amount of unpaid bills remains outstanding.

During the course of the year the Council proposed that a portion of the Society's invested funds should be transferred from Government Securities, then at a high premium, to Calcutta Municipal Debentures yielding a better rate of interest. The proposal was accepted by the Society, but in endeavouring to carry it out it was found that Municipal Debentures were very firmly held and rarely came into the market. No change in the investment has therefore been made.

The Oriental Publication Fund shows similar improvement, the Council having found it advisable to take somewhat vigorous measures during the course of the year to reduce the expenditure from this Fund, which was found to be on a scale considerably exceeding its normal income.

Now, therefore, that the period of financial difficulty which once threatened both the Society and the Oriental Publication Fund seems to be over, a brief reference may be made to the causes of these temporary difficulties, and the heads of expenditure which have shown the greatest fluctuations may be compared. Without taking into account

the very necessary outlay on the buildings in 1888, which was partly met by the purchase-money of the strip of land adjoining Park Street, the more variable items are salaries and the expenditure on the two parts of the Journal. The total sum spent on the second (or Natural Science) part of the Journal during the past six years is Rs. 20,990, which gives a yearly average of little less than Rs. 3,500. The average for the first (or philological) part during the same period is Rs. 1,255, in which is included the cost of Mr. Grierson's Vernacular Literature of Hindustan, which was however to a large extent met by the receipts on account of copies taken by the Imperial and Provincial Governments.

The outlay on printing the Journal has been given separately for the two parts in the yearly accounts from 1882 only, so that the expenditure during the past six years can be compared with that of only the four preceding. The average cost for the Journal, Part I, during the years 1882 to 1885 was Rs. 2,244, and for Part II Rs. 1,393. It follows that the cost of Part I decreased in the second period by nearly one-half, while that of Part II increased two-and-a-half times. This increased expenditure on the Natural History Part of the Journal undoubtedly represents a large amount of valuable work on the part of the Natural History Secretary and of those members of the Society who devote their time to science, and it has certainly increased the value of the Journal to the scientific world. Still, we must follow the homely maxim of cutting our coat according to our cloth. The fact that the credit-balance of the Society was lower in 1888 by several thousand rupees than it had ever been before, and that it was lower still in 1890, shows that the outlay incurred during the past four years has been considerably beyond the means of the Society. At the same time it must be borne in mind that about 1885 the work done for the Oriental Publication Fund was largely increased, and the effect of this was naturally shown in the reduced cost of the first part of the Journal. Thus in 1885 the cost of this part was Rs. 2,224; in 1886 it fell to Rs. 1,075, and in 1887 to Rs. 490. Now that the balance in the Oriental Publication Fund has been exhausted, and the work, as I shall explain directly, has of papers selected for publication in is to be expected that the number of papers thus furnishing an additional reason for keeping expenditure on Part II of the Journal within normal limits.

The average yearly payment for salaries from 1882 to 1885 was Rs. 4,173; and during the past six years this average has been exceeded twice only, in the years 1889 and 1890, while the average for these

years has been Rs. 3,840, or Rs. 330 less than during the previous four years. As the strictest economy has been practised whenever possible, advantage was taken of the opportunity given by the resignation of Mr. Ronaldson to work with a reduced staff, so that the salary bill for the past year has been much less than at any time in the previous ten years. The whole expenditure under this head in 1891 is Rs. 3,138, or more than a thousand rupees less than the average for the years 1882 to 1885.

Thus during these past six years there has been, in comparison with the previous four, a considerable saving on Part I of the Journal, and in salaries. It appears that the low balance in 1890 was chiefly caused by the expenditure on Part II of the Journal. Between the years 1879 and 1885 the balance at credit of the Society varied between Rs. 1,42,000 and Rs. 1,45,000, but since the latter year it has exceeded Rs. 1,42,000 in 1887 only. In 1888 it was Rs. 1,38,032, and in 1890 Rs. 1,37,611. Owing to the careful economy practised by the Council during the past year, the balance is now nearly Rs. 1,41,000, and there is every prospect of a further increase. The opportunity should now be taken to revert to the rule that all entrance fees should be added to the permanent investment instead of to the cash balance; and as there is no longer any urgent reason for keeping the staff on its present reduced footing, the permanent appointment of an Assistant Secretary may now be taken into consideration.

The financial history of the Oriental Publication Fund during the past ten years is altogether different from that of the Society. Up to 1884 the credit-balance was steadily increasing by variable amounts of from two to five thousand rupees a year, the number of fasciculi produced annually at that time being on an average about 21. In 1884 the balance was over Rs. 21,000, and it then became evident that the rate of publication must be increased. A larger number of Sanskrit and Persian works was taken up for publication, with the result that the balance diminished by about Rs. 4,000 a year, and was practically exhausted at the end of 1890. The number of fasciculi published reached a maximum in 1888, when it stood at 58. It became apparent, however, during the past two years that the machinery thus set in motion would continue to work longer than was desirable, and measures have been adopted by the Council, especially during the past year, to limit the publication to the normal number, that is, to the number which can be paid for from the yearly income. Not only has no new work been undertaken, but the less important work already in hand has been suspended. The full effect of

this will appear in the reduced charges for printing and editing during the current year. Assuming that the total income is Rs. 12,000, the working expenses Rs. 2,000, and the average cost of a fasciculus for both editing and printing Rs. 400, the number that can be produced annually is 25. The Council has now arranged that during the current year this number shall, at any rate, not be exceeded.

Statement No. 2 of the accounts for the past year shows that the condition of the O. P. Fund at the end of the year is fairly satisfactory; the cash balance having increased from Rs. 469 to Rs. 1,172, and the outstanding liabilities having been largely reduced, though they still stand at about Rs. 6,000, a considerable portion of which, however, will be paid off during the current year. The improvement is due to the sale of publications having been larger than usual, and to the accounts, as rendered by Messrs. Trübner and Co., covering a period of 18 instead of 12 months. But judging from the increased receipts from the sale of publications during the past few years, there is good reason to suppose that there will be a steady income to the fund under this head of about Rs. 3,500.

Before passing on to a brief review of the work done by the Society and outside it in some of the different departments of Literature and Science during the past year, it is my duty, and a very agreeable duty, to remind you of the services rendered to the Society by its Officers, and of the obligations under which their zeal and devotion place us. The extent and pressure of the work that devolves upon the Secretaries are perhaps little understood except by those who have practical experience of it; and, without an amount of labour that is always considerable and often severe, it is not too much to say that the work of the Society could not be carried on. The death of Rājā Rājendralāla Mitra created a vacancy in the Vice-Presidentship, which the Council have proposed to fill by the nomination of Mr. C. J. Lyall, C.I.E., to that office, a nomination which you have now confirmed. I need hardly remind you that Mr. Lyall is known to the learned world as one of the most erudite and accomplished of Arabic scholars, and that he has already placed us under obligations by his edition of Abu Zakariya's *Commentary on Ten Ancient Arabic Poems*. The closer connexion of Mr. Lyall with the Society cannot fail to increase its usefulness. Mr. Little has discharged the onerous and important duties of the General Secretary throughout the year with eminent success. To Dr. Hoernle's conspicuous services as Editor of Part I of the Journal the Society is greatly indebted. Dr. Hoernle has now been placed on special duty by the Government of Bengal in order to complete the editing of the Bower MS. He has

accordingly expressed a desire to be relieved of the office of Philological Secretary, the duties of which have been readily undertaken by Mr. C. R. Wilson, with the exception of the numismatical work which Dr. Hoernle has consented to retain. Mr. W. L. Sclater has been no less devoted and successful as Editor of the Natural History section of the Journal. On his taking furlough to Europe, Dr. Tull Walsh very kindly consented to take up these duties. Lastly, on Rāja Rājendralāla Mitra's death, Pandit Hara Prasād Shāstri was invited by the Council to undertake the duties connected with the search for Sanskrit MSS., and with the supervision of the Sanskrit portion of the *Bibliotheca Indica* publications. For such duties he is eminently fitted, and he has been recommended by the Council for appointment as additional Philological Secretary, in order to enable him to discharge them more effectively. To all these gentlemen, and to our Honorary Treasurer, Dr. W. King, the Society rests under deep obligations, and I would ask you to pass a cordial vote of thanks to them for their services so freely rendered during the past year. (*The vote of thanks was carried by acclamation*).

My own obligations to the Secretaries and other members of the Society are of a different kind. In the review that follows I have had to rely very largely—in the department of Natural Science I may say entirely—on the assistance of gentleman who are experts in their respective branches of knowledge, and I beg to offer them my cordial thanks for the help so willingly rendered. I am especially indebted to Dr. Hoernle, Dr. Tull Walsh, Mr. Cotes, Dr. Prain, Pandit Hara Prasād Shāstri, Col. Thuillier, R. E., Col. Waterhouse, Mr. C. R. Wilson, Mr. Wood-Mason, Babu Sarat Chandra Das, C. I. E., and, for constant assistance of every kind, to Mr. Little.

I begin, therefore, with some notes on the literary and archaeological department of our work, including Philology,

#### Philology, &c.

History, Ethnology, Archaeology, Epigraphy and Numismatics. Papers on nearly all these subjects have been published in Part I of the *Journal* and in the *Proceedings*. Of the *Journal*, Part I, two numbers have been issued; a third is nearly ready and was to have been issued before the close of the year. It has been delayed by fresh researches, resulting in important discoveries regarding the Bower MS., of which an account will be given later on.

Under the head of Philology the publications of the *Bibliotheca*

#### *Bibliotheca Indica*.

*Indica*, occupy an important place. During the year 34 fasciculi have been issued, including 20 Sanskrit, 11 Arabic and Persian, and 3 Tibetan publications. As already explained, a larger number might have been produced, but the

state of the Oriental Publication Fund rendered it necessary to restrict the out-turn. Next year there will be a still greater reduction; but in future years it may be anticipated that the recovery of the Fund to a solvent condition will enable us to return to our normal issue. Three works were completed during the year; these were the *Tārīkh-i-Firáz Shāhi* of Shams Sirāj 'Arif, edited by Maulavi Vilayat Husain of the Calcutta Madrasa; the *Brihannāradiya Purāna*, edited by Paṇḍit Hriśīkeśa Shāstrī; and the *Nirukta*, edited by Paṇḍit Satyavrata Sāmaśramī.

Among the numbers issued, the two following works deserve conspicuous notice.

*The A'in-i-Akbari of Abulfazl, Translated with Notes by Col. H. S. JARRETT. 2nd Volume.*

The first volume of this translation was published by the late Mr. Blochmann as long ago as 1873, and is deservedly held in very high estimation. At the time of the author's death, it was thought that he had left the remainder of the translation in manuscript; but it could never be discovered, and the Society afterwards made repeated attempts without success to secure the completion of the work. At last Col. Jarrett undertook the task; and the Society is to be congratulated on the completion of the second volume. The third volume is in course of preparation, and will probably be finished in another year. Col. Jarrett's translation is made uniform with Mr. Blochmann's, and is similarly furnished with copious notes illustrating the difficulties of the text.

*A Commentary by Abū Zakariyā Yahyā at-Tibrizī on Ten Ancient Arabic Poems, edited by C. J. LYALL, C. I. E. Fasc. I.*

The ten poems included in this work, which are all pre-islamic, are the seven Mu'allaqāt and three other odes, by al-A'shā, an-Nābighah, and 'Abīd ibn al-Abras respectively. The only one of the ten which has not previously been printed is the last. But the commentary, which is by the same hand as the great commentary on the Ḥamāsah published by Dr. G. W. Freytag, has remained till the present inedited. It is now published on the basis of an excellent ancient MS. at Cambridge, collated with others from Leiden and the British Museum, and with three MSS. of an-Naḥās's commentary upon which Tibrizī chiefly relies. The fasciculus issued this year carries the work to the middle of the poem of 'Antarah: another will complete the text, to which it is intended to add indices and a critical apparatus.

I would also draw attention to the Tibetan publications of the **Tibetan Literature.** *Bibliotheca Indica* series, for which we are indebted to Babu Sarat Chandra Das, C. I. E., and Babu Pratāp Chandra Ghosh. This is a comparatively new field of work, which is arousing considerable interest in Europe. The mass of

Tibetan literature accessible to us is enormous, and of very unequal value; and it will be necessary to exercise great care in selecting works for publication in this series.

Reference may also be made to a paper on the life of the Indian Pandit, Atisa, otherwise known as Dipamkara Srijñāna, by Babu Sarat Chandra Das, C. I. E., published in Part I of the *Journal*. Dipamkara was a learned Pandit of Magadha, to whom Lha Lama, the king of Tibet, sent messengers in the first half of the 11th century, inviting him to visit Tibet in order to restore the pure doctrines of Buddhism, which had become debased in that country by an admixture of Tantric and Pon mysticism. After many refusals he was prevailed on to visit Tibet in the year 1038 A. D., when the king received him with the utmost respect and veneration, and conferred on him the title of Jowo Atisa, (the Supreme Lord who has surpassed all). He revived the practice of the pure Mahāyāna doctrine, and died near Lhasa in 1053 A. D. at the age of 73.

I may also notice the papers of the late Dr. Karl Marx, published in numbers 2 and 3 of Part I of the *Journal*, one being a translation of a dialogue from the Tibetan between a wicked king and his minister, and the other a notice of documents relating to the history of Ladakh, at which place Dr. Marx was a missionary. Death has been very busy in the last few years with Tibetan scholars. We have lost Schiefner, Minayeff, and Jäschke, and now the successor of Jäschke at Ladakh has followed him.

*Tibetan-Sanskrit Dictionary.*—An account may here be given of the Tibetan-Sanskrit Dictionary, in the preparation of which Babu Sarat Chandra Das, as the Tibetan Translator to Government, has been engaged for the last two or three years under the orders of the Government of Bengal. At the close of the Preface to his Tibetan Dictionary, published by the Asiatic Society of Bengal in 1834, Csoma de Kőrös wrote:—"When there shall be more interest taken in Buddhism and in the diffusion of Christian and European knowledge throughout the most Eastern parts of Asia, the Tibetan Dictionary may be much improved, enlarged and illustrated by the addition of Sanskrit terms." The projected dictionary is intended to satisfy this requirement, only much more fully than de Kőrös contemplated. Since his time another Tibetan Dictionary has appeared, the production of Jäschke, the Moravian Missionary at Ladakh. This work, though a great improvement on Csoma's, does not meet the critical requirements of the present day. Jäschke had not at his command the resources necessary for such an undertaking. He was thoroughly familiar with Tibetan as a spoken language; but as regards its literary form, he had access to only a



limited number of Tibetan works that had been published in Germany and at St. Petersburg, besides a few block-prints obtained from itinerant Lamas at Ladakh. More than this, words of every style and of every age are collected together in Jäschke's dictionary without any attempt at classification.

The dictionary which Babu Sarat Chandra Das with his coadjutors has now in hand is of much wider scope than either of its predecessors, and its materials are derived from many different sources. It was in the first instance undertaken at the suggestion of Professor Max Müller, who was anxious to ascertain the exact force of the Tibetan renderings of current philosophical terms used in Sanskrit-Buddhist literature. These technical terms, it was known, were rendered into Tibetan by their precise syllabic equivalents, in conformity with a system framed for the purpose by the Pandits engaged in the work of translating into Tibetan the sacred books of Indian Buddhism. It was hoped that in this way much new light would be thrown on the original meaning of the philosophical terms of that literature, which is now in many instances most obscure.

The dictionary has accordingly been framed on these lines. The Tibetan word is first given, and then its Sanskrit equivalent, if any, followed by (1) a literal translation of the word according to its etymology, (2) the sense or senses in which the word is used in speech or literature, (3) illustrative examples taken from Tibetan works either published or accessible in known libraries. In order to secure, as far as possible, an exhaustive vocabulary and a copious supply of illustrations, Tibetan literature has been ransacked. Recourse has been had, not only to Tibetan-Sanskrit vocabularies like the *Vyutpatti* and the *Mahāvvyutpatti*, some of which had already been translated by Rémusat into French and by Csoma into English; and to Sanskrit works like the *Kalpatalā Kavyādarśa* with their absolutely faithful Tibetan translations; but also to a still larger treasury of literary and scientific wealth. The *Kahgyur*, or collection of Buddhist Scriptures, comprises 108 volumes of about 500 leaves each. With the help of Lama Sherab Gyatsho, of the Goom Monastery near Darjeeling, 90 of these volumes have been analysed for the purposes of the dictionary. The *Tunggyur*, which contains 225 vols., is a still richer storehouse of learning. It contains the text of Pāṇini and other grammarians, treatises from the Sanskrit on ethics, political science and political economy, and even poems like the *Meghadūta*—all transcribed *literatim* in the Tibetan character, together with Tibetan translations and commentaries. The *Tunggyur* is in fact a cyclopædia of Indo-Tibetan literature; and the means by which so many ancient Sanskrit works had been preserved in Tibet

and interpreted to the people had long been a source of wonder to scholars in Europe. Unfortunately we possess no copy of the *Tangyur*, as we do of the *Kahgyur*. Babu Sarat Chandra Das has succeeded in obtaining the loan of one volume from the Labrong Monastery in Sikkim; but if the whole were accessible to him, the value of his work would be greatly increased.

But it is not merely the scientific terms of classical literature that will find a place in this dictionary. The work is intended, as far as possible, to be complete; and will include the language of the present time and of every-day use—in fact, the current vernacular of Tibet. Contributions have also been levied from a large collection of Tibetan and Bhootea correspondence, captured during the late Tibetan campaign. These contain a great variety of idiomatic and honorific words and phrases, the use of which is confined to correspondence and to polite conversation. From another quarter has been obtained a large stock of words peculiar to the terminology of the Pon mysticism, which is thought to have preceded Buddhism in Tibet. These terms are little known to orthodox Buddhists, and were entirely unknown to either Csoma or Jäschke. Readers of our publications will remember how many papers on the Pon religion Babu Sarat Chandra Das has contributed to the *Journal*, from books and materials which he collected during his residence in Tibet. Aid is also promised from abroad; Professor Foucaux of Paris having kindly offered to place at Babu Sarat Chandra Das' disposal the materials that he has himself collected with a similar object, including a long list of philosophical terms, from Buddhist-Sanskrit sources. Finally, in the interpretation of Sanskrit terms, Babu Sarat Chandra will have the valuable assistance of Pandit Hari Mohan Vidyabhushan, the Pandit employed by this Society.

The arrangement of the dictionary will be alphabetical; all the words derived from one root being placed together under that root, and each word being again found in its alphabetical place, with a reference to the word under which its meaning is discussed. The difficult question of pronunciation is provided for by a method at once simple and clear. Typographical devices will be used to distinguish modern and colloquial words from those that are scientific or ancient. Some of the work is now ready for the press, but it will necessarily take a long time before so elaborate an undertaking is completed.

Of works published in 1891, outside the Society, on subjects relating to Oriental Philology, the following may be noticed:—

*Introduction to the History of Language*, by H. A. SFRONG, W. S. LOGEMAN and B. I. WHEELER.—This useful book professes to be little

more than an exposition of the German work of Prof. Paul on the Principles of the History of Language—a reproduction of the same matter in less technical language, and with illustrations drawn mainly from languages with which the English student is thought to be familiar. It will be welcomed by all to whom the German work may be inaccessible.

*Comparative Dictionary of the Indo-European Languages* by PROFESSOR A. FICK. *Fourth edition*.—The first edition of this great work was published more than 20 years ago, and created an epoch in the history of scientific philology. Since then Comparative Philology has made great progress; some old theories have been overthrown, some disputed points have been determined, and new discoveries have been made. It is no wonder, then, that the fourth edition is, in many respects, a new work. The field is too vast for one scholar, and Prof. Fick has now secured the assistance of the best men in each department, such as Sir Whitley Stokes, Prof. Bezzenberger and others. The Dictionary contains three comparative vocabularies, one of the “parent speech,” another of the Eastern, and the third of the Western European periods of linguistic unity.

*The Memoirs of Shūh Tahmāsp I of Persia*, by DR. PAUL HORN.—The Persian text of this work, towards the editing of which the Society contributed a MS. from its library, has been published by Dr. Horn in the *Journal of the German Oriental Society* for 1891. A German translation has been published by him in a separate little volume, with some useful notes and an index of names.

*Mānava Dharmu Sūtram*, edited with a Commentary by PANDIT BHIMA SENA SARMA.—This is a new edition of the well-known law-book of Manu, which has been repeatedly published, the last time by Professor Jolly in Trübner’s Oriental Series. The author explains in his preface his reasons for republishing the work, on which he promises to throw much new light in his commentary. It promises to be an extensive undertaking. Seven fasciculi have appeared, and the Pandit is still in the midst of his introductory dissertation, in which he discusses such questions as the identity of Manu, the date of his writing, and the object of his law-book, and speculates on the contents of each of its chapters. The book is written in both Sanskrit and Hindī.

*Catalogus Catalogorum*, by PROFESSOR TH. AUFRECHT.—This is perhaps the most valuable publication of the year. It is a descriptive list of all Sanskrit literature and Sanskrit authors known, and has been published at the expense of the English Government.

Theodore Aufrecht holds a very high place among the Sanskrit scholars of Europe. He was already well known to the learned world

by his *Latin Catalogue* of Sankrit MSS. in the Bodleian at Oxford, and by his *English Catalogue* of those in Trinity College, Cambridge. His *Catalogus Catalogorum* is a work of the first importance, which has cost him thirty years of close application. In it he has arranged in alphabetical order the names of Sanskrit works and their authors so far as they were procurable. He has given references to the catalogue or catalogues in which these names are to be found. Under the titles of books, he has given the names of their Commentaries in alphabetical order, and under the names of authors, he has given the names of all books attributed to them. It is an invaluable work of reference to the bibliographer and to those engaged in the search for Sanskrit MSS. The labour of these investigators will be greatly economised, for they will not need to trouble themselves about works which have already been described by eminent men like Bühler, Peterson and others. Economy of space in future catalogues is a matter of great importance.

Aufrecht has compiled his work from 56 different series of catalogues, published from the time of Sir William Jones up to the present day. He has made full use of the catalogues published in connexion with the search for Sanskrit MSS. in India. It was a drawback to him that these works have not been prepared on one uniform plan. Some of them are mere lists of names; others, while giving some information about the works in a tabular form, are silent as to their contents; others again give detailed information in English about important works, relegating those of less importance to a tabular statement of no great value, while the descriptions, being given in English, are useless to the pandits of India. It requires a thorough acquaintance with these different catalogues to be able to find out from Aufrecht whether any MS. under inquiry has been adequately described or not in a previous catalogue.

To the works above named may be added, *Studies on the History of the Indo-European Languages*, by C. Bartholomae, and a *Grammar of the Khassi Language* by the Rev. H. Roberts.

Among papers that have appeared in the different periodicals of Europe, the following deserve mention :—

(1) A series of papers by Dr. R. Morris in the *Academy* (May to August 1891,) on Páli and Jaina Prakrit words of obscure or peculiar etymology.

(2) A paper by Professor E. Leumann in the *Vienna Oriental Journal*, Vol. V, No. 2, on the legend of Chitta and Sambhúta, as given in Buddhist and Jaina records. (This is one of the 550 Játakas or birth-stories of the Buddhists.)

(3) A paper in the same number of the *Journal*, by Professor H. Jacobi on Indian Metres, showing that the development of Indian

metres cannot be explained on the rhythmical theory, but must have followed an entirely different line; and that it cannot be fully known what this line was until we acquire a more accurate knowledge of Indian Music. Mr. C. B. Clarke's paper on the theory of Indian Music, originally published in the *Calcutta Review*, is doubtless familiar to many members of this Society, and was, I believe, the first attempt made to treat the question scientifically.

(4) A paper by A. Conrady in the *Journal of the German Oriental Society*, containing the grammar and examples of the Newári language.

(5) A paper in the same *Journal* by Prof. Th. Nöldeke, on the texts of the Book of the Ten Vazirs, especially on an old Persian version of it.

*Search for Sanskrit MSS.*—Professor Aufrecht's *Catalogis Catalogorum* leads me to refer to the work that has recently been done in the search for Sanskrit MSS., for which purpose a liberal grant has been for some years made by the Government of India. I am indebted to Pandit Hara Prasád Shástri for the following account of the work of the last few years.

The collection of Sanskrit MSS. and the publication of their catalogues by eminent men like Sir William Jones, Colonel Mackenzie, Horace Hayman Wilson, Colebrooke and others, created an interest in these MSS. in Europe from the time that Sanskrit first became known to scholars about a hundred years ago. Every one in India who had a taste for Sanskrit collected MSS., and gave or sold them to one or other of the numerous libraries in Europe. But about 25 years ago it was found that with the decadence of Native States, the encouragement given by the Government of India to English education, and the consequent loss of the influence which Brahmans exercised over the Hindu population, Sanskrit learning was falling into neglect, *tols* began rapidly to disappear, and collections of MSS. remained uncared for in the possession of men who could not appreciate their worth. A great pandit dies; his son, an educated gentleman with no knowledge of Sanskrit, takes some care of the MSS., but merely as a memento of his learned father; wraps them up carefully, dries them in the sun after the rainy season, and preserves them in the best room in his family dwelling house. His tastes are different, his children are educated under widely different circumstances, and these consider the MSS. as mere lumber, which occupy space where they could conveniently put a table or a chair. As soon as they come into possession, they relegate the MSS. to the lumber room, the cook-room or the cow-shed, where young girls taught by the Zenana Mission use them as waste-paper; the planks being utilised to kindle fire for cooking. This state of things

becoming widely known, a letter was addressed by Pandit Radha Kissen of the late Lahore Darbar to the Government of India, urging Government to do something for the preservation of these MSS.; and after much correspondence a liberal grant was made for the purpose by the Government of Lord Lawrence. The various Provincial Governments made their own arrangements for carrying on the search for Sanskrit MSS. In Madras these operations have been carried on by A. C. Burnell, Gustav Oppert and Lewis Rice; in Bombay by the celebrated scholars, Bühler, Kielhorn, Bhandarkar and Peterson; in the Punjab by Kashinath Kunte; and in Oudh by Deviprasad. In the North-Western Provinces the duty was entrusted to the Librarian of the Benares Sanskrit College. In Bengal the work was given to the Asiatic Society, which made it over in turn to Rájá Rájendralála Mitra who, assisted by three pandits, one of whom travelled all over the country, published several volumes of Notices of Sanskrit MSS. in the course of 19 years. A very large number of private libraries was visited. Notices were prepared by the travelling pandit in a prescribed form, giving a detailed abstract of any new book that he happened to find. But the work of compiling and editing these Notices, and putting them into a presentable shape, was done by the Rájá himself. His work has elicited just praise from Theodore Aufrecht in the *Catalogus Catalogorum*. The Rájá intended to write a critical report of the works brought to light during the period he was in charge, and it is a source of great regret that he has been removed from the scene of his labours before he had time to accomplish his wishes.

*Inspection of Sanskrit Tols.*—The attention of the Government of Bengal having been directed to the decline that was alleged to be taking place in the popularity and efficiency of the indigenous institutions known as *tols*, in which for centuries past Sanskrit has been taught by pandits of repute to successive generations of pupils, the Lieutenant-Governor, Sir Charles Elliott, deputed Mahámahopádhya Mahes Chandra Nyáyaratna, c. i. e., the Principal of the Sanskrit College of Calcutta, to inspect and report on these institutions. For more than 60 years an allowance of Rs. 100 a month has been made by the Government for the support of pupils in the *tols* of Nadiya, and this allowance has in recent years been increased to Rs. 150, and again to Rs. 200 a month. Grants of Rs. 500 a year each are also made to the Dacca *Sarasvatí Samáj* and the Behar *Sanskrit Sanjivan*, two local associations of pandits and of those interested in Sanskrit study, for the improvement of the *tols* by means of examinations and rewards. The Lieutenant-Governor intimated a wish to make a further grant in support of the *tols*, if it should be found on inquiry that money could be usefully spent in the

furtherance of that object. Pandit Mahes Chandra Nyāyaratna was accordingly placed on special duty for three months, during which he visited all the chief centres of Sanskrit learning in Bengal, Behar and Orissa; and he has now submitted a report which will, I hope, soon be made public, and which gives many interesting details, hitherto unpublished, regarding the constitution of the *toles*, the course of studies pursued in them, and the special characteristics which distinguish them in different parts of the province. A full account is also given of the various institutions, religious or secular, which have been locally established in recent years for the promotion of Sanskrit study; of the Sanskrit schools maintained by these associations as well as by individual patrons of learning; of the examinations conducted by them, either independently or in subordination to the Sanskrit Title examination, held annually by Government in Calcutta and other centres for the award of Sanskrit titles to the students of *toles*; and of the effect of such examinations in maintaining and stimulating the study of Sanskrit. The following extract from the report will be of interest, as showing the causes that have led to the decline of the *toles* :—

“The old custom of sons pursuing the calling of the father, which made pandits’ sons grow up to be pandits, unless they happened to lack the mental power to do so, is losing its hold upon the country, and pandits’ sons are accordingly being trained up for secular callings that promise better prospects from a worldly point of view than the calling of a pandit. Thus it is that families of pandits in Bengal have all been tending to assimilate themselves to the other Brahman families of the province, i. e., have all been tending towards secular callings that hold out prospects of pecuniary gain. Most of the best pandits of Bengal, all the Mahāmahopādhyāyas without exception, have trained up or are training up their sons or grandsons for other callings than their own—have given them or are giving them, in fact, an English education. It is but natural that men should prepare their sons for such walks of life as they think would be most advantageous to them, and this is what the pandits of Bengal have been doing. Non-pandit Brahman families hardly ever think of training up any juvenile member at a *tol* for the career of a pandit. Our *toles* are thus being threatened with a stoppage of supply of boys. An utter stoppage of supply is not likely to occur in the near future, but matters appear to be clearly tending to this. The aggregate intellectual capacity of the present generation of *tol* students is lower than that of the past generation as unquestionably, I think, as the number is lower; and this deterioration in quality and decrease in number, judging from present circumstances, tend to be progressive. To arrest this

decline very liberal help from individuals and from the State would be needed."

The proposals of Pandit Mahesha Chandra Nyayaratna involve considerable expenditure, in the way partly of providing stipends for selected teachers of distinction, and partly of assigning rewards to teachers and scholarships to pupils on the results of annual examinations. I think we shall all agree that if the decline of these ancient and interesting schools of Sanskrit can be arrested at a moderate outlay on the part of Government—an outlay which will almost certainly arouse the liberality of the wealthy in this country—the money will be well spent.

The number of publications received in 1890, under Act XXV. of 1867, in the eleven libraries of the Empire was 7,877, and reports on these works have been issued by the Home Department of the Government of India. Several catalogues for 1891 have also been issued, but with the exception of those for Bengal, Bombay and Madras, the catalogues are generally mere lists. In the following paragraphs, for which I am indebted to Pandit Hara Prasád Shástri, M. A., the Bengal Librarian, a brief account will be given of the most important of these publications.

They naturally divide themselves under two heads, *viz.*, Original works and Republications. It is remarkable that the original works of the present day are almost wholly in prose, and the republications almost wholly in verse. Since the days of the Bráhmaṇas and Upanishads no original work of any value has until recently been written in prose; that having been left entirely to the Commentators and to the heretical Buddhists and Jains. The vernaculars of India, with the exception of Urdú, were altogether without prose until the introduction of English education in this country about 50 years ago. Greater activity is, however, now displayed in searching for and publishing ancient works, than in writing new ones. The original works include art, biography, history, fiction, essays on all subjects, and voyages and travels; the republications including poetry, grammar, dictionaries, and theology in almost all its phases.

*Fine Arts.*—Valuable works on Fine Art have been written by, or published at the expense of, titled gentlemen of wealth and influence. Rájá Sir Saurindra Mohan Tagore keeps up the reputation of Bengal by publishing works on the literature of music; and the Senior Rájá of Venkatagiri is the author of a Telugu work on music, which embraces both the Hindu and Muhammadan systems. This valuable work teaches music, both vocal and instrumental, and also dancing. Painting has not much advanced, but the religious pictures drawn by the students of the



Government School of Art are a great improvement on the painting practised 20 years ago. The maps of various countries recently published show a great improvement in artistic skill.

*Biography.*—The biographical literature of India is rich and useful. The people are learning to study man as he is, and are leaving off the old way of deifying and worshipping every great man of their nation. The list of biographies, which, it will be seen, is by no means confined to India, contains the following names:—The late Dewan Peshkar of Pudu Cota, in English; Sháh Latif, the greatest poet of Sindh, in Arabic-Sindhí; Socrates in Gujarátí; Richard Cobden in Maráthí; Tántia Bhíl in Bengálí, English and Maráthí; Bachcharája, a Jaina saint, in Gujarátí; Bágghata, a great medical writer, and Kalyána Deva, a Rájput hero, in Maráthí; Ballabhacharya, the great Vaishnava reformer of Western India, in Gujarátí, and in Sanskrit and Gujarátí; Udar Lal, a great Hindú saint of Sindh, who saved many lives from Muhammadan persecution, in Arabic-Sindhí; Bhánu Dás, a great worshipper of Bīṭhova in Pandarpur, in Maráthí; Bápú Goklá, the last of the great Marhatta generals, who died manfully fighting in the defence of Marhatta independence, in Maráthí; Chaitanya, the great Bengal reformer, in Canareso; Kuñwar Fa'áljī Mahata, in Urdú; Henry Lawrence in Urdú; Edward Gibbon in Hindí; Abraham Lincoln in Maráthí; Bradlaugh in English and in Maráthí; Bholánáth Sárabhái, the well-known theistic Reformer of the Western Presidency, in Gujarátí; Pandit Íśvarachandra Vidyáságara, Narottama Dás, Prabodhánanda Sarasvatí, and Dr. Duff, in Bengálí.

*Drama and Fiction.*—Prose works of imagination, namely, dramas and works of fiction, are many and various, but they do not show much originality or boldness of conception. They treat mostly of the quarrels of the daughter-in-law with her mother-in-law; of educated ladies married to uneducated men of equal family rank; of learned Babús married to illiterate wives; of the miseries of married widows, written by the orthodox classes; and of the miseries of girl widows, by the friends of progress. For instance, *Shikha* in Malayalam is a tale of a girl's marriage against her wishes; *Bhulbhulamári* in Gujarátí and *Sansayí Strí* in Maráthí. *Shirin Ma'lam* in Gujarátí is a life-like picture of Parsi life in Bombay.

The writers often desert India and travel to European countries in quest of their heroes and heroines. For instance, the *Chaste Jewess* in Gujarátí gives a description of the persecutions of the Jews by the English in the 13th century. *A'iche Majíní*, in the same language, is a Christian tale. *Ohháyá* in Bengálí is a picture of a joint family just before its decline, under the altered circumstances in which India is now placed.

*Anáth Bálak* presents a faithful picture of Hindú family life in the Mufasssil, both in wealth and in poverty. *Vimśa Śatābdi* is a work of fiction, giving a picture of what India may be a hundred years hence. *Sankalpa Sáryodaya* in Tamil is an adaptation of a Sanskrit drama of the same name, which is unknown to the learned world outside Southern India. It is something like an allegory, though not written in the manner of the *Prabodha Chandrodaya* of Kṛṣṇa Miśra. It is written in the interest of Rámānuja's followers.

The drama describing the career of the great Jaina saint Sthúlābhadrā in Gujarátī shows that Jaina saints have still a hold on the people of India. *Rambhāmanjarī* is a newly written Sanskrit drama from Southern India. Such works in Sanskrit are not at all rare in any part of India. *Kālī Kautuka Rūpaka* is an allegorical Hindú drama which describes the evils of the *Kālī Yuga*.

*Grammars and Lexicons*.—These works are of great philological value, and some of the very best books have been published during the period under review. The Pandits of East Bengal are rapidly publishing all supplementary works of the *Kātantru* or *Kalāpa* school of grammar. Pandit Hṛṣīkeśa Shāstrī has finished his edition of the *Supadma Kaumudī*, a work based on Pāṇini, but written, it is said, by a descendant of the great Vararuchi. *Rasagangādhara*, an important rhetorical work of great value, is being published in the *Kāvyamālā* series of Bombay.

Works still more rare and important have been issued in Madras. *Urichol Nikāṇḍu* is a rare lexicon of the Tamil tongue. It was long supposed to have been lost. It gives, in the form of the celebrated *Amarakosha*, the synonyms of all things in heaven and earth, with the exception of abstract qualities. *Nighaṇṭu*, of which *Nikāṇḍu* is only a Tamil form, means 'a work of synonyms'; and we have the great Vedic *Nighaṇṭu*, on which Yāska has written his *Nirukta* in the form of a Commentary. *Pingala Nikāṇḍu* is another important discovery of a lost work. The synonyms in this work are those of metrical, grammatical and rhetorical terms. Another lexicon, a medical one, in Telugu, gives synonyms of words divided according to the six medical *rasas* to which all things belong. Many Gujarátī merchants trade with the Western Coast of Africa, where the Swahili is the chief language, and so these merchants have published a guide to the Swahili language in the Gujarátī character. This, like most African languages, has no written character of its own. Besides these, Bombay has published a Hebrew Dictionary, to help people in acquiring a knowledge of the Hebrew, Chaldaic and Talmudic languages, and a metrical grammar of the Avasta language.

The *Viśva Kosha*, a Bengálī encyclopædia, was stopped for want of

support five years ago. Bábu Nágendra Náth Basu has undertaken to carry it on, and has published 12 parts in the year. The last word is *Kalikátá*, or Calcutta, and the writer has collected a mass of very valuable information on the history and antiquities of the city.

*History.*—The historical literature of Bengal, the North-Western Provinces, and Sindh is of no great importance. Maháráshṭra and the Panjab have a history, and are therefore rich in historical literature. The Panjab has not, however, published anything of importance except *Karindámá-i-waliyan Sialkot*, giving the history of Peshwara Singh and Kashmíra Singh, the reputed sons of Ranjít Singh, the Lion of the Panjab. In Maráṭhí, however, have been published a history of Shambhuji and Rájárám, the sons of Shivaji; Dhundhu Bála Kṛishṇa Sahasrabuddhi's account of the career of Parashurám Rao and of the troubles of his times; the Chronicles of the Peshwas from 1713 to 1818, that is, for the entire period of their existence as a great power in India, by an officer of the Court of Baji Rao II, written either immediately before or immediately after the British conquest in 1818; and a history of Madhu Rao II, who was succeeded by Baji Rao II. The history of Surat from its foundation 700 years ago, in Gujarátí; an abstract history of Mecca in Urdú; a history of the Itiápurá family in Madras, who materially helped Government in suppressing the rising of the Polygars in 1800, in Tamil; *Tárikh-i Bandras* in Urdú; the letters of 'Alamgír in Persian; and the Memoirs of Dehlí and Fyzabad in English, compiled from Persian sources,—these are all the works in history of any importance which have been published during the period under review.

*Essays.*—A *Collection of the Political Opinions of the late Sir T. Madhava Rao*, in two parts, in English, is the only work on politics worth the name. Sir T. Madhava Rao was a sound thinker on religious, social and administrative matters, and his opinions have always exercised an immense influence on the educated natives of India. The literature of the Congress and of the Cow Protection movement is as copious as in previous years. We have works on the Cow Protection movement in almost every language. Even the Central Provinces, which publish next to nothing of importance, have issued an appeal for the protection of cows. The Consent Bill agitation has produced a very large number of pamphlets, many of which have not been received in the libraries as they were intended for private circulation only.

The Caste books are becoming more and more important. The Songars of Southern India claim descent from Viśva Karman and call themselves Brahmins. They have published books both in Tamil and in

**Maráthí.** The pretensions of the Kayasthas of Bengal to a Kshatriya descent have been opposed by a Brahman in the work entitled *Hathát Kshatriya*. The publication of the *Ballála Charita* is significant. The Jogis and Sonár Baniyás of Bengal think that Ballál Sen degraded them, and so they have unearched a *Ballála Charita*, which paints Ballál in the darkest colours possible. The Sennars or toddy dealers of Southern India have been cried down in a Tamil pamphlet.

The Árya Samáj people have been for years carrying on a controversy against the orthodox Hindus on the one hand, and against the Musalmans on the other, giving to the literature of the Panjab a life and vigour which are wanting in other provinces. No less than 15 pamphlets have been marked in one quarterly catalogue alone against the theory of the transmigration of the soul. The locusts have also absorbed a good deal of the attention of Panjábí writers. The immorality and dissolute lives of the Mahárájas, or Abbots of the followers of Ballabháchárya, have been exposed in a work entitled *Pushṭimárga*.

*Travels and Voyages* are rarely undertaken by the great majority of the Indian people. Most of the works under this head treat of single journeys on business, from one part of India to another or from India to England. Paṇḍitá Rámúbái, however, is writing a large work, in parts, of her travels in England and America. A description of the journey undertaken by the Sháh of Persia to England and France has appeared in Urdú. *Viśvaṇadarsana* is the description of an imaginary journey in Sanskrit, which has been translated into Tamil for the benefit of the people of Southern India.

*Poetry and Religion.*—In the palmy days of Indian literature, when the Hindú mind retained its full vigour, the domains of poetry, philosophy and religion were kept distinct. But with the decadence of literature and the loss of independence, these three things began to be so blended together that it is impossible to separate them; as is the case with the mediæval poetry of India. The *Premabhaktichandriká* and the *Smaranamangala*, both in Bengálí, by two of the great leaders of the followers of Chaitanya, belong to this class of poetry. They comprise the poetry, philosophy and religion of Vaishnavism. The *Ráma Rásáyana* in Bengálí is also a work of this class. It shows, however, how the different sects in India derived their materials from the original Aryan and Brahmanic sources, and adapted them to their own use. As a Vaishṇava work, the *Ráma Rásáyana* leaves out those incidents of Ráma's life which have any thing to do with Sákti or Saiva worship. *Nalayira Divyaprabandham*, called the Tamil Veda, in Tamil verse, is a large work in honour of Viṣṇu. It was written by the Vaishṇava Alwars. There is a very noteworthy point of difference between the

Bengal and the Madras religious publications. While in Bengal the writers are concerned more with the spread of the worship of different superhuman beings like the *Satyanārāyaṇa*, the *Trinātha*, *Mangalachandī*, and others, the Madras people are fond of writing short treatises in honour of the deities of different temples, such as the Vishṇu of Teru Narāyanpura, the Siva and Durgā of Teru Mulainayal, the Nāṭeśa of the Chidambara temple, and so on.

Jaina religious works in prose and verse are to be found in almost every province of India. The most remarkable production of the year is the *Jayati Huṇa Stotra*, in Prākṛit, by the great commentator Abhaya Deva Sūri, who lived about 800 years ago. He discovered an image of Jina on the banks of a river, and consecrated it in Cambay. The work is in honour of this image. The *Jaina S'taka* in Śanskṛit by Bhūdān Dās, the *Rasika Stavana Saṅgraha* in Gujarāṭi, are also Jaina works of importance published during the year. *Chūlāmani* is a rare classical poem of Jaina origin, published for the first time in Tamil. The *Dincard* is a very ancient work in Pahlavi. It has been published for the first time, though in a very mutilated form for want, apparently, of good texts, with an English and a Gujarāṭi translation. Dārā Shikō, the eldest son of Shāh Jahān, was a very enlightened prince. He was a follower of the Ilāhī religion of his great-grandfather, and often held conversations on religious matters with professors of different religions, especially with Hindū devotees. A dialogue between him and Bābā Lāl Dās, in Persian, has been translated into Urdū. It is a work of the nature of the *Milinda Prasna*, between Menander and a Buddhist monk. The ex-Rājā of Venkaṭagiri has written a remarkable work in Telugu, in which he discusses some of the most abstruse doctrines of religion. Books in support of the Brahmo movement have been received from all the southern presidencies.

A collection of epigraphical songs by Tukarām, Nāma Deva, Eka-nātha, &c.; Kabirāj Bhukhan's short poems on Shivajī and Chhatrasāl, the Rājā of Panna; and a collection of ballads in three parts devoted to the glorification of the Satara Rāj family, the Peshwa family, and the Marhatta Sirdārs, are publications of great value to the Marhatta people.

Among the serial publications of philological interest, Bābū Pratāpa Chandra Raya's English translation of the *Mahābhārata* is steadily approaching a conclusion. It has advanced to the *S'ānti Parvan*. Pandit Rāmanārāyaṇa Tarkaratna is issuing regularly in parts some of the most important works on Chaitanyaism in Śanskṛit and in Bengālī. He is now engaged with the *Chaitanya Charitāmṛita Mahākāvya* and the *Haribhakti-vilāsa*. The Khargavilās Press of Bankipur has issued,

under the distinguished patronage of Mr. Grierson, a complete *Rāma Charit Mānas*, commonly known as *Tulsī Kṛitā Rāmāyāna*. It has been edited from very ancient MSS. Bābū Barada Prasād Basu's revised edition of *S'abdukālpadruma*, with copious and valuable additions, has come up to the letter *ya*, and his edition of the *Devībhagavat* is making fair progress.

The Anandāśrama series of Sanskrit works, published at Poona, has issued six important works—*S'rī S'ankaradigvijaya*, with the commentary of Dhanapati Sūri and extracts from the commentary of Achyuta Rao Modak, the *Rudrādhyāya*, with the Bhāshyas of Sayana Bhaṭṭa Bhaskara, three *Upanishads* with rare commentaries, and Vidyāraṇya Swāmin's *Jivana Mukti Gītā*. The Kāvya-mālā series, published at Bombay, contains a very large number of poetical pieces of all sizes in Sanskrit, written mostly before the Muhammadan conquest. The MSS. of these works were discovered by Messrs. Bühler, Kielhorn, Bhandarkar, and Peterson in the various libraries of Western and North-Western India, both public and private, while in charge of the operations in search of Sanskrit manuscripts. The last number contains the *Hara Vijaya* by Rājanka Ratnākara, so well described in one of the Bombay Reports. The *Prāchīna Kāvya-mālā Grantha*, published from Ahmedabad and Baroda, has issued twelve parts. It contains the works of Gujarātī poets of great celebrity and popularity.

While treating of the publications of philological value in Bombay, the labours of Colonel G. A. Jacob deserve prominent notice. He has worked hard for eight years in preparing a complete concordance of the principal *Upanishads* and the *Bhagavat Gītā*, entitled *Upanishad Vākya Kosha*. The greatest activity in editing and publishing Sanskrit texts is to be found, as might be expected, in Benares, the centre of Hindū culture from the remotest period of Indian antiquity. The *Pandit*, a monthly paper edited by the Pandits of the Benares Sanskrit College, continues to be published. It contains many rare works of great value. In the Benares Sanskrit series Messrs. Griffith and Thibaut are publishing a number of philosophical works; and in the Vijayanagaram series under the superintendence of Mr. Venis, who is now engaged in the publication of the *Nyāya Kandali*, written by a Bengālī Brahman in the 10th century of the Vikrama era, much valuable work is done.

Nor should I omit to mention the *Ushā*, edited by the venerable Pandit Satyavrata Sāmāśramī, who has done so much for Vedic Literature in India. The *Ushā* is a Vedic journal, and it has already published a large number of small works bearing on the pronunciation, chanting and meaning of Vedic words.

Under this head we have a paper by Mr. C. H. Tawney, c. i. e., on some ancient Indian Methods of electing **History, Ethnology, Kings, published in the *Proceedings* of November, &c.** 1891; and another by Mr. W. P. Driver on some interesting Kolarian tribes of Chutia Nagpur and the borders of Orissa, published in Part I of the *Journal*. There is also an interesting paper in the *Journal* by Dr. Waddell on "Place and River Names in Sikkim," in which an account is given of the different ethnic elements of the population of this tract, and the etymology and meaning of names derived from different sources are determined.

In the *Indian Antiquary* we find papers by Mr. J. F. Fleet, c. i. e., on the Chronology of the Eastern Chalukya Kings, and on the computation of Hindu dates; by Major R. C. Temple, on the Burman system of arithmetic, a cumbrous system which, in a modified form, is still in vogue among Hindu astrologers all over India; by Professor Kielhorn, an examination of questions connected with the Vikrama era, and a paper on the Saptárshi era; and by Dr. Hoernle, two *pattavalis* of the Sarasvati Gachchha of the Digambara Jains,—the first publication of a complete series of the Pontiffs of the Digambara section of the Jains. There is also a series of papers on Indian folk-lore, by G. F. D'Penha, Pandit Natesa Shástri and Patlibai D. H. Wadia. Professor Bühler publishes a paper in Vol. V., Part 3, of the *Vienna Oriental Journal*, on the origin of the Gupta Vallabhi era, in which he proves, against Fleet, that the Gupta era is not a Nepalese but an Indian era, marking the epoch of the accession of Chandra Gupta I to imperial rule. The *Journal of the German Oriental Society* contains several papers of value on Indian Subjects.

*The Tribes and Castes of Bengal*, by H. H. RISLEY, c. i. e., c. s.; 4 volumes.—This extensive work, consisting of 4 volumes, gives us the results of the ethnographic inquiry instituted by the Government of Bengal in the beginning of 1885. The inquiry was originally intended to extend to the whole of India, but ultimately it was not found possible to go beyond Bengal. Mr. Risley, who was placed in charge of the inquiry, has succeeded in these volumes in bringing together what appears to be an exhaustive account of Bengal with reference to the tribes and castes inhabiting it. In the first two volumes he gives an enumeration and description of them in alphabetical order in the form of a glossary. In the last two are put together the tables of anthropometric data, on which Mr. Risley's ethnographic generalisations are based. These he sets out in the introduction to the first volume, and they form not the least important or interesting part of his work. The conclusions at which he arrives are briefly these: The whole of India is inhabited by a

long-headed (dolichocephalic) race; the broad-headed (brachycephalic) race occurs only along the northern and eastern borders of Bengal, and can hardly be deemed Indian at all. In the long-headed race, however, two extreme forms can be distinguished; one (the Aryan) has a straight, finely-cut nose, a long, narrow face, a well developed forehead, regular features, high facial angle, and fairly high stature; the other (the Dravidian) has a thick broad nose, low facial angle, thick lips, wide and fleshy face, coarse and irregular features, rather low stature, squat figure and sturdy limbs. Between these two extreme types a large number of intermediate groups can be distinguished, each of which forms for matrimonial purposes a sharply defined circle, commonly known as a caste, beyond which none of its members can pass. If these groups are arranged in the order of their average nasal index, or the formula indicating the proportion of the length of the nose to its breadth, so that the caste with the finest nose shall be at the top, and that with the coarsest at the bottom of the list, it is found that this order substantially corresponds with the accepted order of social precedence. Thus Mr. Risley arrives at the curious result, that it may be laid down as a "law of caste organisation in Eastern India, that a man's social status varies in inverse ratio to the width of his nose." Whether the two extreme types really represent two distinct races, as Mr. Risley is disposed to believe, or whether they do not rather represent the two extreme points of differentiation of the same race under differing conditions, is a question which may be considered open to further research. Mr. Risley's volumes are published as a preliminary edition in order to invite criticism with the object of supplying omissions and correcting mistakes. We may hope that their accomplished author will soon be enabled to give us the second edition of his valuable work in its final form.

*Vedic Mythology* by PROF. A. HILLEBRANDT of Breslau. 1st volume: *Soma and Cognate Deities*. (In German).—The author of this excellent book will be well-known to many members of our Society as the editor of the *Saṅkhāyana Śrauta Sūtra* in the *Bibliotheca Indica*. He has made the study of the Vedas his speciality, and in the present work he has given us not the least important results of his researches. The question of the identity and the name of the famous *Soma* plant has been long discussed, and still remains undecided. It will be remembered that at the time of the Afghan Boundary Commission, the naturalist who accompanied it was instructed to make inquiries on the subject. These inquiries would perhaps have been more fruitful, if it had been possible to place in his hands a brief abstract from Sanskrit authors of all notices of the *Soma* plant occurring in them, leaving his mind unbiassed by



any theories. This want has now been supplied by Prof. Hillebrandt, and it should be a great help in any future practical inquiries. Unfortunately it now turns out that the oldest sources, the Vedas; afford very little definite information; but they show that the Soma was not the flower (hops) or fruit (grapes) of any plant, as some great authorities have thought, but young light-coloured shoots of a plant growing in mountainous places, whence they used to be brought down by traders and sold to the priests for their sacrifices. For the latter purpose four small and deep holes were dug in the ground, forming a small square; over these two wooden boards were laid to serve as "sounding boards;" over the boards a red skin was spread, the hairy side uppermost; on this skin the stones were laid with which the juice of the Soma shoots was expressed by pounding. Sometimes a mortar and pestle were used instead of the stones. The juice thus extracted was mixed with water in a large vessel, whence it was afterwards poured into smaller vessels and mixed with milk or liquor. For libation and consumption cups were used. In the second part of his work, Prof. Hillebrandt treats of the mythological transformation of Soma and its cult.

*The Computation of Hindu Dates in Inscriptions, with General and Special Tables.* By PROFESSOR H. JACOBI.—The substance of this work was originally published in the *Indian Antiquary*. It is now republished, enlarged and revised, as a part of the *Epigraphia Indica*. The verification\* of Hindu dates\* is an intricate business. It is beset with difficulties of two kinds: one is caused by the strictly astronomical basis of the calendar; the other is due to the intricacy of the calendar system, which is further enhanced by the variety of usages adopted in different parts of India as regards some of the elements. Professor Jacobi's work is a very successful attempt to reduce these difficulties to a minimum, and to all students of the epigraphical records of India, so many of which are dated, it is a most welcome contribution.

*The Badoej's*, by DR. JUL. JACOBS and J. J. MEIJER. (In Dutch).—This book gives an interesting account of a small and very little known community of people living in the wilds of the western part of Java, —the "Badoej's," as Dr. Jacobs spells their name. They are of particular interest to India, as representing probably a survival of Indian Buddhism. Owing to the strict seclusion in which they maintain themselves, very little has hitherto been known about them. Dr. Jacobs, as Sanitary Officer of the Dutch East Indian Legion, had special facilities of intercourse with them; and his book gives us the first trustworthy information on the religion, manners and customs of this interesting little people. The Badoej's are said to have retired into the wilds of Western Java on the conquest of their country by the Muhammadans under

Maulāna Ḥasanuddīn, in the early part of the 16th century. The principal names of the Hindu pantheon are still familiar to them.

It is in the department of Archæology and Epigraphy that the greatest activity is found. The *Epigraphia Archæology and Indica* is wholly, and the *Indian Antiquary Epigraphy*.

almost wholly devoted to it; and numerous papers on these subjects appear in the Journals of all Asiatic Societies. Mr. Fleet, Professor Kielhorn, Dr. Hultzsch, and Professor Bühler have published readings of numerous copperplate grants and other inscriptions in the *Indian Antiquary* and the *Epigraphia Indica*. Amongst the papers deserving of special mention are the following :—

(1) Prof. Bühler's papers in the *Epigraphia Indica* on "New Jaina Inscriptions from Mathurā." These inscriptions have all been recently dug up by Dr. Führer of the Archæological Survey. They are of very high importance as affording genuine contemporary evidence of the Jaina traditions.

(2) Prof. Bühler has also contributed to the *Vienna Oriental Journal* a paper on 'Indian Inscriptions to be read from below.' Dr. Hultzsch was the first to prove the existence of this curious class of inscriptions. Prof. Bühler shows that some hitherto unintelligible inscriptions make sense if read in this way.

(3) The same authority publishes Contributions to the Explanation of the Aśoka Inscriptions, in the *Indian Antiquary* and in the *Journal of the German Oriental Society*.

(4) Prof. Kielhorn has a paper on "Sanskrit Plays, partly preserved as Inscriptions at Ajmere," in the *Indian Antiquary* for June 1891. These are two unique inscriptions of very great interest, inasmuch as they preserve portions of two hitherto unknown dramas, and afford actual proof of the fact that Hindu kings composed poetry. One of the dramas is a composition of Vīgraha Rāja Deva, a Chohan Prince of the 12th century A. D.

(5) M. Etienne Aymonier publishes in the *Journal Asiatique* of the French Asiatic Society, a Study of the Chame Inscriptions in the vulgar language of the ancient kingdom of Champa in Further India (Annam). They date from the beginning of the 9th century A. D. onwards.

One of the most useful publications of the year is Dr. A. Führer's report on "The Monumental Antiquities and Inscriptions in the N.-W. Provinces and Oudh, described and arranged." This is a goodly volume, 425 pages quarto, published by the Archæological Survey of India. The information in it was partly collected by Dr. Führer himself, partly reprinted by him from different Oriental scientific journals, such as the

Journals of the Asiatic Society of Bengal, the Royal Asiatic Society of Great Britain, the Indian Antiquary, &c., It serves the useful object not only of putting on record a complete list, so far as they are known, of the antiquities and epigraphs of each district, but also of furnishing general information for the guidance of those who may have the wish and the leisure to interest themselves in the character and history of the places in which they live.

*Transfer of the Behar Collection of Buddhist remains to the Indian Museum.*—A very important collection of Buddhist and other Indian remains was made some years ago by Mr. Broadley, then subdivisional officer of Behar in the district of Patna. This is the country, formerly known as Magadha, in which the Buddha lived and preached, and which is associated in the closest way with the *origines* of Buddhism. A suggestion having been made that the collection should be transferred to Bodh Gaya, the Trustees of the Indian Museum appointed a Committee to consider the question. The Committee in the first instance deputed Babu Purna Chandra Mukharjea, an archaeologist who had been recommended to their notice, to proceed to Behar and make a catalogue and descriptive list of the objects forming the collection. From his report it was abundantly manifest, in the first place, that the collection, the Buddhistic portion of which Dr. Burgess had described as the largest in India, was of rare interest and value to the historical student; and in the second, that it was exposed to serious risk from neglect and mischief, from the action of the weather, and from depredations, which had already wrought deplorable havoc. The Committee therefore strongly recommended that the collection should be preserved from further injury by being transferred to the Indian Museum. On a representation being made to him, Sir Charles Elliott, the Lieutenant-Governor of Bengal, generously promised a grant of Rs. 5,000, partly to defray the cost of transporting the collection to Calcutta, and setting it up in the Museum, and partly to provide for the prosecution of further researches by Babu P. C. Mukharjea at Rajgir and Barragaon, two places in the neighbourhood, which are no other, if Genl. Cunningham's identification be accepted, than Rājagriha and Nālanda, so well-known in connexion with the history of Gautama Buddha. The Babu's report showed how full these places were of remains of the highest interest, what damage had been done to them by the action of the climate and of men, and how desirable it was both to preserve permanent records of them, and to keep them from further decay. It is a matter of congratulation that, thanks to the liberality of the Lieutenant-Governor, this valuable collection of over 600 sculptures, Buddhistic and Brahmanical, is now safely housed in the Indian Museum, where it is not only secure from

further loss and injury, but is made permanently accessible to the student of archæology and of the history of religions. A full catalogue of the collection will be prepared as soon as Babu P. C. Mukharjea returns from his present tour.

*Site of the Black Hole of Calcutta.*—During the year 1891 a considerable advance has been made towards accurately determining the topography of Old Fort William, Calcutta, the result of which has been to disturb the accepted views regarding the site of the Black Hole. Reports of these investigations have appeared from time to time in the daily papers; but it seems desirable to give a permanent place in the *Proceedings* of this Society to a short account of a discovery which we owe to the energy of our Philological Secretary, Mr. C. R. Wilson, to whose kindness I am indebted for the following notes.

The first attempts in this direction were made nine years ago by Mr. R. R. Bayne, a member of the Asiatic Society, who discovered nearly all the foundation walls of the northern portion of the Fort, during the erection of the East India Railway Offices in Clive Street. In February 1883, Mr. Bayne laid before the Asiatic Society the results of his investigations. Unfortunately they suffered under two disadvantages. In the first place, the portions of the old building actually excavated were on the northern and least interesting side of the fort. In the second place, Mr. Bayne had no proper plan to guide him in his conjectures as to the position and nature of the remaining portions of the fort. The investigations of 1891 have been carried on under far more favourable conditions. Availing himself of the opportunity afforded him by the erection of the New Government Offices in Dalhousie Square, Mr. Wilson has succeeded in discovering considerable remains of the buildings on the south side of the Fort, where the Black Hole and other places of interest were situated; and he has had the advantage of being guided in his excavations by a detailed plan of Fort William in 1753, a photographed copy of which was presented to the Asiatic Society by Mr. T. R. Munro. The results of these investigations have been so successful that it has been found possible to draw up a plan of the Old Fort, accurately showing its position with reference to the modern houses now standing on or near its site, together with the main features of its principal buildings. Mr. Wilson's investigations began with the discovery of the true dimensions and position of the east gate of the Fort. The gate was found to be much smaller than Mr. Bayne had conjectured it would be. Its centre lies on the central line of the road in front of Writers' Buildings, which has always been one of the principal streets of the city. In the next place Mr. Wilson has traced out, as far as was possible, the main features of the factory within

the Fort, in which were situated the apartments of the Governor. This was in its day one of the finest English houses in India. It consisted of a main building facing the river, with two wings behind at right angles to the main building. Almost all the foundation walls of these wings have been traced out by excavations, and the position of the walls of the main building has been ascertained, although the walls themselves could not be traced out, as the site of the main building is at present occupied by the Government Opium godowns and by the out-houses of the Custom House. Besides this, Mr. Wilson has endeavoured as far as possible to ascertain the positions of the south curtain, of the south-east bastion, and of that portion of the east curtain which lay between the south-east bastion and the east gate, together with the adjoining arcades and chambers. Considerable difficulty has been experienced in coming to any definite conclusion on these points; for, in the first place, the Post Office covers the site of the south-east bastion and the adjacent south curtain wall, and so prevents any extended excavations in this region; and in the second place, the plan of the old Fort which has elsewhere proved to be extremely accurate, seems at this point to fail. Still, in spite of these difficulties, Mr. Wilson has been able to definitely fix the position of the south curtain wall and of the three parallel lines of arches within it, and to show that tradition was right in asserting that the old arcade and arches which still stand in the Post Office compound were part of the old Fort. The arches of the south face of this arcade are what remains of the first line of arches within the south curtain, and the arches in the middle of the arcade are what remain of the second line of arches. The foundation wall of the third and innermost line of arches has been traced out for some distance. It was found in the passage on the north of the Post Office. Starting from this wall, or, what is practically the same thing, from the north face of the Post Office, Mr. Wilson has traced out the east curtain wall as far as the east gate, the inner wall containing the chambers built against the curtain, and the wall of the piazza or verandah running west of the chambers. The Black Hole prison was one of these chambers; but to fix its exact position it is necessary to ascertain, not merely the positions of the curtain wall and the inner wall, which formed its eastern and western walls, but also the position of the cross-walls which formed its northern and southern boundaries, and divided it off from the other chambers built against the east curtain. Unfortunately these cross-walls were run up with hardly any foundation, and hence it is extremely difficult to trace their position. One such cross-wall has been found at a distance of about 100 ft. from the centre of the east gate, and to the south of this there is another cross-wall which Mr. Bayne discovered in 1883, and

which according to his theories must have been the north wall of the prison. According to Mr. Wilson this cannot have been the case; because the space south of this cross-wall is shown by the plan of the Fort to have been occupied by the foot of the staircase leading to the south-east bastion. On the other hand Mr. Wilson thinks it quite possible that this wall is the south wall of the prison. Mr. Wilson, however, still hopes to gain additional information concerning this and other points in the topography of the Fort by further excavations and by the examination of old records.

*Discovery of the Bower MS.*—I will now draw attention to the great event that has marked the history of the year, in the discovery in Kashgaria of the Bower MS., so called by Dr. Hoernle after Lt. Bower, who found and brought it to India. Of the history of this discovery we have the following account by Lt. Bower. The MS., which is written on birch-bark, "had been dug out of the foot of one of the curious old erections just outside a subterranean city near Kuchar." These erections are described as being "generally about 50 or 60 feet high, in shape like a huge cottage-loaf; built solid of sun-dried bricks with layers of beams now crumbling away." Dr. Hoernle reasonably conjectures that these erections are Buddhist stúpas. Such stúpas, he observes, often contain a chamber enclosing relics and other objects; these chambers are generally near the level of the ground, and are often dug into by persons in search of hidden treasure. From such a practically air-tight chamber, Dr. Hoernle thinks, this MS. was probably dug out, perhaps not long before it came into Lt. Bower's possession; and there is no reason why a birch-bark MS., thus preserved from the chances of injury, should not endure for any length of time.

The MS. was sent by Lt. Bower to Col. Waterhouse, who exhibited it at the meeting of the Society in November 1890, but it could not then be deciphered. An account of its acquisition by the finder, together with facsimile reproductions of two leaves of the MS., appeared in the *Proceedings* for that month. On Dr. Hoernle's return to India in March 1891, the MS. passed into his hands; and in the *Proceedings* for April Dr. Hoernle gave a preliminary account of the MS., which he had then ascertained to be written in Sanskrit of a very archaic type. The detailed description of the MS. was published in No. II of Part I of the *Journal* for 1891. In that paper Dr. Hoernle minutely analysed the forms of the letters occurring in the MS.; and by a chain of arguments, the strength and lucidity of which are such as to compel the assent of every reader, proved that the MS. was written not in the Śáradá character of Kashmir, as had been previously conjectured, but in the Gupta character, a much earlier form; that separate portions of it were written by

different scribes and at different dates ; and that the latest portion must be ascribed to a date not later than the second half of the 5th century, or say 475 A. D., while the earlier portion must be referred to a date half a century earlier. The Bower MS. is therefore the oldest Indian MS. yet discovered, and one of the oldest MSS. existing in the world.

As to its subject matter, the MS. is composed of five distinct portions, of which the first and fifth are medical works, the latter merely a fragment. The second and fourth are collections of proverbial sayings ; and the third contains the story of a charm against snake-bite, given by Buddha to Ananda while he was staying in Jetavana. The following translation of the introductory lines of the first portion will be interesting :—"Salutation to the Tathāgatas. I am going to write an approved compendium (of medicine) called the Nāvanītaka, based on the excellent system of the Mahārshis as composed by them in olden times. Whatever is useful to men and women afflicted with various diseases ; whatever is also useful for children, that will all be declared in this book. It will commend itself to those physicians whose minds delight in conciseness ; but on account of the multiplicity of its prescriptions, it will also be welcome to those whose minds love many details." After enumerating the contents of the several chapters (16), the preface concludes,—“It should not be given to any one who has no son, nor to any one who has no brother ; nor should it be taught to any one who has no disciple.”

Dr. Hoernle has now transcribed nearly the whole of the MS., which consists of 55 leaves, and has translated a large portion of it. In the forthcoming 3rd number of the *Journal*, he will publish “An Instalment of the Bower MS.,” giving the text, and an English translation (with notes) of its 5th portion, consisting of five leaves and containing a fragment of a medical work. He has succeeded in tracing some of the prescriptions given in the MS. to the Suśruta, Chakradatta, and Vangasēna—medical works still current. Some of the prescriptions are verbally identical.

Dr. Hoernle's estimate of the age of the MS. is confirmed in a striking manner by Dr. Bühler of Vienna, who, examining the question by the light of the account and the facsimile plates published in the *Proceedings* of November 1890, came independently to the same conclusion as to its date. In the account which Dr. Bühler published in the July number of the *Vienna Oriental Journal*, he writes as follows :

“I trust that Dr. Hoernle, the able and learned Secretary of the Society, will take the volume in hand and give us a full account of its contents. If the Society wishes to render a real and great service to the students of Indian Palæography, it will publish photo-etchings of the whole volume. Every line of the MS. is of the highest importance.”

It would, however, have been beyond the means of the Society to carry out the work on so elaborate a scale; and when this fact was represented to the Government of Bengal, and subsequently to the Government of India, these two Governments, by a joint arrangement, very readily and liberally agreed to render the necessary assistance for the editing and publication of the MS. The Society will be glad to learn that the Government of Bengal has relieved Dr. Hoernle of his other duties during the whole time necessary for the completion of the work, while the Government of India has undertaken to defray the considerable expenses connected with the publication, including photographic facsimiles of every page of the MS. For these services to scholarship, the cordial thanks of the Society and of all interested in the progress of Oriental research are due to the Governments concerned.

[Since the foregoing was sent to Press, Dr. Hoernle informs me that he has received a further communication on the subject of the date of the MS. from Professor Bühler, who now intimates that he is inclined to assign to the MS. an even higher antiquity than that already assigned to it, possibly by 50 or 100 years. Indeed, Dr. Hoernle himself has independently come to the conclusion, since writing his paper of November 1891, that no part of the MS. can probably be dated later than the first half of the 5th century. Dr. Bühler, I may add, in a second paper published in the *Vienna Oriental Journal*, recommends Dr. Hoernle's "able and elaborate argumentation" to all Indian epigraphists for most careful study, and describes it as "by far the most important contribution to Indian epigraphy which has appeared of late."]

I may begin my remarks under this head with the following extract from the Preface to an elaborate report on the progress of Numismatics in India from 1886 to 1891, which was presented by Mr. Vincent Smith to the recent Congress of Orientalists. This preface is republished in the *Academy* of October 31st, 1891. After giving a very interesting description of the eleven classes into which he divides Indian coins, with an account of the chief discoveries under each, in which he quotes largely from the *Proceedings* of this Society, Mr. Smith proceeds:—

#### Numismatics.

"I shall conclude by calling special attention to the disinterested labours of Dr. Hoernle, much of whose valuable time is taken up by the examination of the thousands of coins which are poured in upon him from all quarters. In his address for 1889, the President of the Asiatic Society of Bengal records the fact that during the previous year Dr. Hoernle had examined and reported upon more than 4,000 coins, of which vast number 2,460 were noted in the *Proceedings*. In 1887 the same indefatigable worker examined more than 3,200 coins."



Dr. Hoernle informs me that he has examined and reported on about 2,000 coins since his return to India in March 1891, though only one among them required particular notice, namely, the very rare gold Gupta coin of the " Couch " type, noticed below. Nearly all were sent to him under the Treasure Trove Act.

Mr. J. Rodgers' private collection, containing upwards of 8,000 coins, has been purchased by the Punjab Government for the Lahore Museum, —a great acquisition. Duplicates will probably be supplied to other Museums. Its special feature is the collection of Indian Moghul coins, which is almost exhaustive.

Mr. Rivett-Carnac's valuable collection will probably, it is understood, be purchased by the Government of India for the Indian Museum. The special feature of this collection is the series of gold Gupta coins, which is unequalled in quantity and quality, containing upwards of 100 specimens, some unique and most of them rare; e. g., the gold coin of the " Couch " type of Chandra Gupta II, an account of which by Dr. Hoernle was published in our *Proceedings* for August.

An important find of Roman coins was made near Bangalore in the course of the year. They number 163, all silver *denarii* of ten types, belonging to the reigns of Augustus, Tiberius, Caligula, Claudius and Antonia, mostly of the two first-named. All are of known types. A report on these coins has been given by Mr. Rice in the Records of the Indian Museum, Calcutta, to which specimens of the coins of Augustus and Tiberius have been presented by the Mysore Government.

The following work recently published by an Honorary Member of our Society deserves prominent notice :—

*Coins of Ancient India from the earliest Times down to the Seventh Century, A. D.*—By Major-General SIR A. CUNNINGHAM, K. C. S. I., C. I. E., R. E.

This is a most welcome contribution from the greatest living authority on Indian numismatics; all the more so, as it treats of the more obscure classes of the ancient Indian coinage. The well-known and generally well-preserved coins of the Satraps of Suráshtra, and of the Gupta kings of Magadha, have been fully described in the *Journal of the Royal Asiatic Society*, the former by the late Pandit Bhagwán Lal Indraji, the latter by Mr. V. Smith. But no one seemed to feel equal to the task of bringing together and classifying the numerous smaller classes of silver and copper coins, the ascription of which was obscure, and many of which were in a very indifferent state of preservation, Sir A. Cunningham alone possessed the requisite knowledge and experience; and the long-expected work from his pen will, therefore, be most gratefully welcomed by all numismatists. It first explains,

in an introduction, the origin of Indian coinage, and its relation to that of Assyria, Babylonia, Phœnicia and Greece. It then describes successively the so-called punch-coins, which may be as old as 600 B. C., and the coins of Taxila, Odumbara, Kuninda, Kosambi, Yaudheya, Panchála, Mathurá, Ayodhyá, Ujain, Eran, the Andhras of South India, and Nepal. These descriptions are illustrated by 13 plates and a map. It may be added, that the learned author promises to publish a second volume, which will describe the coins of mediæval India, from 600 A. D. down to the Muharrmadan conquest.

Mr. E. J. Rapson contributed "Notes on Gupta Coins" to the *Numismatic Chronicle*, Part I, for 1891. The paper gives some additions to Mr. V. A. Smith's standard work on the subject. The *Indian Antiquary* for September 1891 contained a paper by Dr. E. Hultzsch on the "Coins of the Kings of Vijayanagar," being the first attempt to give a complete list and description of these coins.

I now turn to that department of your work which deals with the Natural Sciences. Of Part II of the Society's *Journal*, which is reserved for papers on these subjects, three parts have already appeared during the past year, and the volume will be completed by part 4, which is now in the press and will shortly appear with the index and title-page for 1891.

In reviewing the Zoological work done during the year 1891, I have thought it sufficient to confine my observations to purely Indian communications, either from members of this Society throughout the country, or from others working in the Bombay and Madras Presidencies.

There is no longer much scope for original work among mammals, and I have only to notice the issue of a carefully compiled *Catalogue of Mammalia in the Indian Museum*, by Mr. W. L. Sclater, M. A., F. Z. S. This catalogue includes the orders from *Rodentia* to *Monotremata*, and is really the second part of a catalogue commenced by Dr. Anderson and issued in 1881. Mr. Sclater has further drawn up and published a *List of the Snakes in the Indian Museum*, and has also contributed to the Society's *Journal* a short but valuable paper, accompanied by a plate, on the Snakes in the Indian Museum. Five new species were described, viz:—*Ablabes Stoliczkae*, *Sinotes Wood-Masoni*, *Zaocys Tenasserimensis*, *Tropidonotus Pealii*, and *T. nicobarensis*.

In the January number of the *Annals and Magazine of Natural History*, Mr. J. Wood-Mason and Dr. A. Alcock published the first part of a most interesting and useful paper on the results of the deep-sea dredgings made by the officers of H. M. Indian Marine Survey Steamer "Investigator" during the season 1889-90. The materials dealt with

were collected in depths ranging from 90 to 1439 fathoms, and, in the paper referred to, were arranged in catalogue form, but no systematic details were given except in the case of *Fishes* and *Crustaceans*. In the order *Madreporia* Dr. Alcock named and described three new corals; two, *Caryophyllia ephyala* and *Stephanotrochus nitens*, taken by the collectors on the "Investigator," and one, *Rhizotrochus Worsleyi*, presented to the Indian Museum by Captain Worsley. The type specimen of *Stephanotrochus nitens* is a very fine one. A complete list of 35 deep-sea fishes collected during that season is given, and includes 24 new species. Of the other classes noted in this part of the paper, it must be mentioned that the deep-sea *Holothurians* were worked out, named, and described by Dr. J. H. Tull Walsh, who published the results of his investigations in the *Journal* of our Society, Part II, No. 2. Dr. Walsh has described all the deep-sea forms obtained from 1887 to 1891, and notes two new genera and seven new species. In connexion with the study of *Holothurians*, I would draw attention to a valuable translation of a paper by Dr. Hubert Ludwig on the development of these creatures, which appeared in the *Annals and Magazine of Natural History* for December 1891. In the February issue of the above-mentioned *Journal* another portion of the paper by Mr. Wood-Mason and Dr. Alcock appeared, and this is chiefly noteworthy on account of the new species of *Crustaceans* described by Mr. Wood-Mason, and for the very good original drawing of *Nephropsis Atlantica* ♂ Norm. which it contains. The March number contained a further instalment of notes on *Crustaceans* by Mr. Wood-Mason, the most interesting and important of these being the full and clear description of a new crab, *Parilia Alcocki*.

To the *Annals and Magazine of Natural History* for July, August, October, November and December, Mr. Wood-Mason and Dr. Alcock contributed a series of papers showing the results of the "Investigator" deep-sea dredgings during the season 1890-91; and in the issues for July and August Dr. Alcock described fully many new bathybial fishes. In the October and November numbers Mr. Wood-Mason contributes further to the literature of the *Crustacea*, and finally in the December number Dr. Alcock describes certain new star-fishes. These two authors have also conjointly contributed a most important paper to the *Proceedings of the Royal Society*, "On the Uterine Villiform Papillæ of *Pteroplatea micrura* and their relation to the Embryo, being Natural History Notes from H. M. Indian Marine Survey Steamer 'Investigator,' Commander R. F. Hoskyn, R. N., Commanding, No. 22." To these nutrient villi, which are found in certain selachian uteri, the authors have given the name of *trophonemata*, at once suggesting the part they play in relation to the embryo, which is practically suckled in utero. I will com-

plete this rough sketch of Dr. Alcock's work during 1891 by referring to a paper contributed by him in March to the *Proceedings of the Zoological Society of London*, "On a Viviparous Bathybial Fish from the Bay of Bengal, *Saccogaster maculata*," in which the embryo is developed while still in the oviduct. The male of this species is provided with a distinct copulatory organ, but there does not appear to be any special modification of the oviduct in the female.

In the December *Bulletin of the Microscopical Society of Calcutta*, I find an interesting paper by Mr. Wood-Mason on *Clathrulina elegans*, Cienk., a pretty Protozoan, a specimen of which was discovered in the General's Tank by Mr. W. J. Simmons, an active member of the Microscopical Society.

Outside this Presidency Mr. Alfred Gibbs Bourne, lecturer on biology in the Madras University, has done some good work during the past year, contributing papers to the *Quarterly Journal of Microscopical Science* on *Naidiform Oligochæta*; on *Megascolex ceruleus*, Templ., found in Ceylon; and on *Pelomyxa viridis*, a new species of *Rhizopod* discovered in a tank near the Presidency College, Madras. Of Mr. Bourne's papers the most important one is that on the *Naidiform Oligochæta*.

The file of the *Journal of the Bombay Natural History Society* shows that its members have not been idle during 1891. Lient. Barnes, F. Z. S., continues his notes on "Nesting in Western India," and his letterpress is accompanied by very trustworthy coloured drawings of most of the eggs collected. Mr. A. W. Morris, F. Z. S., contributes to the *Journal* an interesting paper on "Abnormal Horns of the Indian Antelope," with a plate.

Turning to another branch of Natural Science I must not forget to mention that Col. Waterhouse has been continuing his observations on electro-chemical reversals of photographic plates with Thio-carbomides, and has published notes in the *Proceedings* of this Society and in the *Journal of the Photographic Society of India*.

The fascinating study of Indian Entomology has attracted a large number of workers during the past year, and several interesting communications upon the subject have been read before this Society.

#### Entomology. .

Among the publications of the year may be noticed :—

(1.) Mr. Hampson's elaborate monograph on the moths of the Nilgiris, published by the Trustees of the British Museum. In this work Mr. Hampson describes and figures about three hundred new species, the classification being chiefly based upon the Indian Museum Catalogue of Moths. The figures are coloured, and the work will be a most valuable aid in the identification of species.

(2.) Part IV of Mr. Distant's monograph on Oriental Cicadidæ, published by order of the Trustees of the Indian Museum. This part, which comprises about 42 species and is beautifully illustrated, brings the work down to the genus *Cicada*, which is the last in the family; it may therefore be hoped that the monograph will soon be completed. The Cicadidæ are a small group of insects which attract some attention in India on account of the species which sing so lustily in the still air of the Himalayas.

(3.) The second part of Mr. Wood-Mason's *Catalogue of Mantodea*, published by order of the Trustees of the Indian Museum. This part, which is illustrated with two excellent plates, deals with nineteen species of Mantidæ from different parts of the world. It includes descriptions of two new species from the Indian region.

(4.) Parts 4 to 7 of Mr. Moore's extensive work on the Lepidoptera of India. The seven parts of this book that have appeared deal altogether with 78 species of Euploëinæ; and the scope of the undertaking may be gathered from the fact that, on the present scale, something like 800 quarto plates and 2000 pages of letterpress of corresponding size will be required for the description of the butterflies alone.

(5.) Mr. Watson's *Hesperidæ Indicæ* (Vest and Co., Madras). This is a useful compilation of descriptions of Indian Hesperidæ, which have hitherto been scattered over a number of more or less inaccessible publications.

Numerous papers and reports on Indian Entomology have, as usual, appeared in the serials of the past year.

In the *Journal* of this Society, Dr J. H. Tull Walsh gives an interesting account of some spiders which mimic ants. Mr. Doherty describes a number of new and rare Indian Lycænids, besides contributing some valuable notes on the butterflies of the little known islands of Engano, Sumba, and Sumbawa in the Malay Archipelago. Mons. Bigot contributes the first part of his *Catalogue of the Diptera of the Oriental Region*, and the Rev. A. E. Eaton furnishes a paper on the Epheméridæ of the Indian Museum.

In the *Scientific Memoirs by Medical Officers of the Army of India*, Dr. J. H. Tull Walsh writes on the habits of certain harvesting ants which he found at work both at Pooree and on the Maidan in Calcutta.

In *Indian Museum Notes*, Lord Walsingham describes a new species of Tineidæ which attacks tea in Ceylon; Mons. Bigot describes a new fly which attacks melons in Baluchistan; Mr. Maskell describes some new species of Coccidæ which attack tea and other plants; Mr. Moore and Mr. G. C. Dudgeon write on a new Psychid which attacks the Sal tree in the Darjeeling district; Mr. Cotes gives a number of notes on

insects sent to the Indian Museum as destructive to crops, with descriptions of new species by Messrs. Moore, Buckton and Kerremans. In the same periodical also appear reports by Mr. Cotes on the Wild Silk Insects of India, on White Insect Wax in India, and on the Locusts of Bengal, Madras, Assam and Bombay; also a paper by the late Mr. E. T. Atkinson on American blight.

In the *Journal of the Bombay Natural History Society*, Mr. Watson writes on some butterflies of the Chin Lushai Hills; Mr. Botham on the butterflies of the Central Provinces; and Mr. de Nicéville on new and little known butterflies from the Indo-Malayan region. Brief entomological notes also appear by Captain Sage and Mr. Wroughton, besides a reprint of a report by Mr. Cotes on the Locust of North-Western India, which was out of print.

In the *Transactions of the Entomological Society of London*, Colonel Swinhoe describes a number of new species of moths from South India. Mr. Snellen gives a Catalogue of the Pyralidina of Sikkim, and Professor Westwood describes an aphid which infests bread-fruit trees in Ceylon.

In the *Proceedings of the Zoological Society of London*, Mr. Kirby describes several new species of dragon-flies from Ceylon, and Mr. Elwes discusses the butterflies collected by Mr. W. Doherty in the Naga and Karen Hills and in Perak.

In the *Journal of the Linnean Society of London*, Mr. Kirby gives a revision of the Forficulidæ, and amongst others, he describes some new species from India and Ceylon.

In the *Annals and Magazine of Natural History*, Mr. Gahan describes five new species of Longicorn Coleoptera and three new Galerucidæ; Mr. Waterhouse describes five new species of Scarabæidæ; and Mr. Warren three new species of Pyralidæ; all from the Indian region.

In the *Annales de la Société Entomologique de Belgique* are a series of papers on the Coleoptera collected by Mons. Cardon, Missionary in Chota Nagpore. Of these Coleoptera, the Buprestidæ are described by Mons. Kerremans, the Tricentenotomidæ and Cerambycidæ by Mons. Lameere, the Haliplidæ, Dytiscidæ and Gyrinidæ by Mons. Severin, the Cicindelidæ by Mons. Flentiaux, and the Elateridæ by Mons. Candèze. Mons. Forel also describes some new species of Indian ants; Mons. Kerremans writes on a Buprestid from the Indian Museum collection, and Mons. Haylaerts describes some new Indian Psychidæ.

In the *Memoirs and Proceedings of the Manchester Literary and Philosophical Society*, Mr. Cameron describes a number of minute Hymenoptera, some of them from the Indian Museum collections.

The contribution to Indian Botany during the year under review

**Botany.**

that possesses the greatest general biological interest is a striking paper by the late Dr.

A. Barclay *On the Life-history of a remarkable Uredine (Uromyces Cunninghamianus)* published in the *Transactions of the Linnean Society*, Vol. 3. Hardly less interesting is a noteworthy paper by Dr. D. D. Cunningham, F. R. S., *On some species of Choleraic Comma-Bacilli occurring in Calcutta*, published in *Scientific Memoirs by Medical Officers of the Army of India*, Part vi. This latter periodical contains two papers on cryptogamic botany by Dr. Barclay—on *Two Autæcious Cœgmata in Simla*, and on *Rhododendron Uredineæ*.

The most important contributions to Indian Systematic Botany have been the completion of Sir Joseph Hooker's masterly account of the Indian *Orchilaceæ*, in Part xvii (the opening portion of Vol. vi) of the *Flora of British India*; and revisions by Dr. G. King, C. I. E., F. R. S., of great economic as well as systematic value, of the Indian *Magnoliaceæ* and of the Indian and Malayan species of *Myristica*, both contained in *Annals of the Royal Botanic Garden, Calcutta*, Vol. 3, which has been issued during the year. In the Society's *Journal* Dr. King has also continued his *Materials for a Flora of the Malayan Peninsula*, a systematic work of the highest value. The part last published (No. 3) contains description of the species of *Malvaceæ*, *Sterculiaceæ* and *Tiliaceæ*. A valuable contribution to systematic botany during the year has been an account, by Dr. D. Prain, of the genus *Gomphostemma* in *Annals of the Royal Botanic Garden, Calcutta*, Vol. 3. Dr. Prain has also contributed to the Society's *Journal*, Part II, descriptions of a species of *Nepeta* and of two species of *Glyptopetalum*. Sir D. Brandis has noted in the *Indian Forester* (Oct. 1891) the existence in Burma of a new species of *Terminalia*; and Mr. H. N. Ridley has described four new orchids in the *Journal of the Linnean Society*.

The most important contribution to Indian Phyto-geography during the year has been *A Sketch of the Vegetation of British Baluchistan, with Descriptions of New Species*, by Mr. J. H. Lace, of the Indian Forest Department, assisted by Mr. W. B. Hemsley, of the Kew Herbarium. Dr. Prain has contributed a paper to the Society's *Journal*, Part II, on *The Vegetation of the Coco Group*, and has also published in the Society's *Proceedings* (Dec. 1891) an account of a botanical visit to Little Andaman and the Nicobars, with lists of plants from two islands never before botanically investigated.

The most important contribution to Indian Economic Botany for the year has been the issue of Vol. 5 of the *Dictionary of the Economic Products of India*, by Dr. G. Watt, C. I. E. The volume has been prepared by Dr. Watt, with the collaboration of Mr. J. F. Duthie and of Drs. J.

Murray and W. R. Clark, and embraces economic subjects, alphabetically arranged, from *L* to *O*.

The Geological Survey Department continues to direct its attention to economic mineral exploration; though geological investigation is kept in fair progress. The

### Geological Survey of India.

very extensive area occupied by the *Dhurwars* (Transition) in the Anantapur, Bellary, Cuddapah, and Kurnool districts of the Madras Presidency has, for all practical or economic purposes, been fully surveyed by Mr. Foote, and its position in the formational succession of India has thus been brought into closer correlation with certain transition divisions in Central India and the north-west frontier of Bengal, particularly the *Gwaliors* and the *Bijawurs*. At the same time, the associated crystalline rocks of this region have been differentiated into two series; the more foliated (or even schistose) sub-division of which can be connected with other bands in the Carnatic and Northern Districts, the whole constituting a distinct newer sub-series in the crystallines of Southern India. The importance of this survey of the Madras gneisses becomes manifest when considered in the recent light thrown on their relations by the remarkable paper, "*Contributions à l'étude des gneiss à pyroxène et des roches à wernérite*," by M. Al. Lacroix, in the *Bulletin de la Société Française de Minéralogie*, for April 1889; which gives the result of the first detailed microscopical work on the crystalline rocks of Ceylon and Salom.

In Baluchistan Mr. Oldham's work has been among the Cretaceous, Tertiary and Recent formations; the most interesting and important feature of which has been his recognition of a series of passage-beds, constituting his *Dunghan Group*, which he describes as probably representing the gap between the Secondary and Tertiary periods in Europe. This is an important link in the chain of evidence already gained in Peninsular India and in Sind, regarding the occurrence of series of strata offering similar interpretation. His examination of the recent deposits in the valley plains of Quetta, Pishin and the Dashti-Bedaulat, in connexion with the interesting group of natural artesian wells at Quetta itself, has enabled him to report on the mode of occurrence and probable distribution of artesian waters in these valley plains.

On the North-Western Frontier, the posting of Mr. Griesbach with the Miranzai Force, and of Mr. Middlemiss with that of the Black Mountain Expedition, afforded opportunities for some examination of the geology of those regions. Mr. Griesbach's survey has furnished material for a report which includes Notes on the Safed Koh and its skirting ridges; on the Geological Results of the Miranzai Expedition; on the Geology of the Khaibar hills; and on the Petroleum springs of



**Pannoba.** The main feature in this report, of interest to geologists in Europe, is his discussion of the possible connexion of the Safed Koh with the Hindu Kush system. He goes entirely against Prof. Waagen's extended interpretation of the views of Prof. Suess, as given in the former author's latest fasciculus of the Salt-Range Fossils (*Paleontologica Indica* Series XIII, Vol. IV, Part 2, *Geological Results*); concluding that the Safed Koh is distinctly not part of the Hindu Kush system. Orographically speaking, it differs in strike; and structurally it is not analogous to the latter. The Hindu Kush contains, within its flexures, a series of marine miocene beds which take part in all the contortions and flexures which have affected the older rocks; it therefore dates in its entirety from post-miocene times. On the other hand, within the Safed Koh system there is no marine formation interposed between the later nummulitics (Murree series) and the Sivaliks. The elevation of this area was therefore finished, or at all events sufficiently so to form dry land, in miocene times, together with the ground north-east of it in the Himalayan system. The petroleum shows at Pannoba in Kohat are extremely poor; and Mr. Griesbach's examination of them does not lead to any prospect of improvement by drilling.

In mineral exploration, the work of the Survey may be summarised as follows: complete localisation of the important gold tracts in southern India; recognition of indications suggestive of the possible existence of lower Gondwana coal-measures under the Sripermatpur group near Madras; examination by boring of the Daltongunj coal-field in Bengal; completion of the Darjiling coal survey; a fairly promising survey of the copper occurrences in Sikkim; renewed examination of the Garo hills coal; coal and oil exploration in Baluchistan and the south-east slope of the Takht-i-Suleiman on the Punjab frontier; and continuation of the Mergui tin exploration with very favourable results.

The Survey of India Department under Colonel Thuillier, R. E., again has a good record of geographical reconnaissance, the total area of new country mapped on various scales during the Survey year 1890-91 amounting to no less than 103,426 square miles. This area includes portions of Persia, Baluchistan, the North-Western Frontier of India, and Upper Burma, and is exclusive of the area surveyed by the topographical and revenue parties of the department.

**Upper Burma.**--Four columns operated on the Frontiers of Upper Burma during the season 1890-91, and were all accompanied by survey detachments. That under Lt. Elliott proceeded from Bhamo along the right bank of the Irrawaddy to the confluence of its two main branches,

#### **Survey of India Department.**

#### **Geographical Explorations & Surveys.**

the Malikha and the 'Nmaikha, at about 150 miles by land from Bhamo. Some rough measurements taken here gave approximately 33,500 cubic feet per second as the volume of the 'Nmaikha or eastern branch, while that of the Malikha or western branch was only 23,000. The temperature of the water in the former was also found to be 5° or 6° colder than that of the latter, from which it would appear that the 'Nmaikha receives more snow water than the western branch. The Malikha is navigable for boats when the water is low to Sardan, 24 miles north of the confluence, and possibly much further, but owing to rapids the 'Nmaikha is only navigable some six or seven miles from the junction. The latter being wider and deeper than the Malikha, and having the greater discharge of water, may fairly be considered the main source of the Irrawaddy.

The expedition proceeded northwards through a dense jungly country to a hill known as Pumlum Pum, about 57 miles from the confluence, but was unable to advance further. From this point Major Hobday was able to map in a good deal of the country along the course of the Malikha, almost to the Kanti country previously reconnoitred by Col. Woodthorpe in 1884-85. The expedition then moved back to Pumwai and went eastwards to Sabaw on the Malikha, thence south along the right bank of the latter to Kwitao, and then crossing the river reached the 'Nmaikha at Lekennoi ferry, some 20 miles east of the confluence. From this point they marched *via* Mailoimpum to Maingna, on the left bank of the Irrawaddy. A second attempt was made to ascend the 'Nmaikha, but it failed owing to the opposition met with at three marches from Maingna. This river has been accurately mapped in from the confluence as far as 'Nsentaru, where it makes a sudden turn to the west after flowing from the north. Beyond this point its general direction is known to be northerly, but the river itself is soon lost behind high mountains, and trustworthy information regarding its further course could not be obtained. No information of the existence of the Naungsa lake, which was reported to be the source of one of the branches of the 'Nmaikha, was obtained; and it appeared doubtful whether the river was fed by any large lake source, though it seemed probable that it had a large eastern tributary at a point several days' journey from the confluence. The Kantis refer to two rivers to their east, called the Nam Tisan and the Namdu Mai or Phung Mai. From the accounts given by the Kanti Shans of the position of the latter river, about 45 miles to the east, as well as from the similarity of the names and other points, there seems to be no question that it is the 'Nmaikha in its upper reaches, and is the eastern branch of the Irrawaddy. The Kanti Shans further state that there were two other large rivers to be crossed before

reaching China, and these would be the Lukiang or Salween, and the Lan Ts'angkiang or Mekong. Little doubt therefore remains that the Lukiang is identical with the Salween, though there is so far no absolute proof of it. It is to be hoped that this will not long be wanting.

Major Hobday, who accompanied this party, succeeded in mapping 4,300 square miles of hitherto unexplored country lying to the N. E. and E. of Bhamo.

Captain Longe, R. E., and Lieutenant Gordon accompanied the columns which operated to the north and west of Mogaung, and succeeded in reconnoitring some 1,500 square miles of new country. The expedition under Lieutenant Daly, which started from Lashio and visited the chief villages of the states on the eastern frontier of the Shan States, was accompanied by Captain Renny Tailyour, R. E., who during the march of the column reconnoitred 5,250 square miles of unexplored country. This officer was enabled, at Meunglem and at Kenghung on the Cambodia, to compare the results of his work with those of M. Garnier, a French surveyor. These results agreed closely in latitude, but there was some difference in longitude. The Kyaington Chiengmai frontier mission under Mr. Archer was accompanied by Mr. Kennedy as survey officer. He succeeded in mapping 9,000 square miles of previously unknown country, lying chiefly to the north of that mapped during the previous year by the Anglo-Siamese Boundary Mission.

In addition to the above special reconnaissances, the general survey of Upper Burma has been carried on by two parties under Captain Longe, R. E. and Mr. Ogle respectively, and the outturn of their past season's work amounts to 21,794 square miles.

*Baluchistan.*—Geographical surveys on the  $\frac{1}{2}$  and  $\frac{1}{4}$  inch scales have been carried on by the party under Colonel Holdich, R. E., in the Zhob Valley, in Mekran, and on the Perso-Baluch frontier, the total area amounting to 30,240 square miles.

*Persia.*—Sub-Surveyor Imam Sharif Khan Bahadur was employed during the year on exploration work in Persia, and returned with the large total of 30,500 square miles of reconnaissance, on the scale of 8 miles to the inch.

*N.-W. Frontier.*—The expeditions which operated on the Miranzai border and in the Black Mountain country were accompanied by Captains Mackenzie and Wahab, R. E., respectively. In the former, 278 square miles were surveyed on the 1 inch scale, and 20 on the  $\frac{1}{2}$  inch; and in the latter, 184 square miles on the 2 inch, and 360 square miles on the  $\frac{1}{4}$  inch scale.

A party under Lieutenant Close, R. E., has continued the principal

**Trigonometrical Surveys.**

triangulation in Burma along the North West Karen hills. Observations were taken from nine principal stations, and the series was extended over a direct distance of 45 miles, embracing an area of 900 square miles. The selection and completion of thirteen principal stations in advance of the season's completed work will allow of the employment of two observers during the current season, and the outturn of work will be materially increased.

**Tidal and Levelling Operations.**

During the year tidal observations were carried on at 17 stations on the coasts of India, Burma and Ceylon. The observatories at Madras, Coconada and Chittagong were closed during the year, while registrations were commenced at Trincomalee and Minicoy.

The levelling operations of the year comprised three lines of double levelling, namely from Rajkot to Dhasa and thence along the Bhavnagar-Gondal railway line to Bhavnagar, from Samosra station on the same line to the Chachuda Temple near Salbet, and from Naydongri station along the north-eastern division of the G. I. P. Railway to Bhusawal, and thence to Malkhed station on the Nagpur branch; in all 425 linear miles.

Observations for latitude were carried out by Lieutenant Lenox-Conyngham, R. E., at seven stations, between the parallels of  $13^{\circ}$  and  $15^{\circ}56'$ , situated on the Madras Meridional Series of the Great Trigonometrical Survey. The instrument used was a new zenith telescope designed for the application of Talcott's method—a system well known in America but not previously tried in India. The results prove that this instrument is very little inferior to the zenith sector, while it is not one-tenth of its weight.

**Trigonometrical Branch Office.**

Photographs of the sun have been taken, as in former years, at the Trigonometrical Branch office, Dehra Dun, on all days on which the sun was visible. The computing section of this office has carried on the work of the final reduction and publication of the results of the operations of the Trigonometrical Survey. Volume XIV, containing the details of the triangulation of the S. W. Quadrilateral, has been completed, in addition to three synoptical volumes. Progress has also been made with the volumes dealing with electro-telegraphic and tidal operations.

**Topographical Surveys.**

These have been carried on in Chittagong, Jalpaiguri, the Southern Maratha country, Gujarat and Rajputana, Merqui, Baluchistan and the Himalayas. Forest Surveys were continued in Hoshangabad, Cen-

tral Provinces; in North Canara, and in the Poona and Thanna districts of the Bombay Presidency; in Coimbatore, Tinnevely and Madura districts, Madras Presidency; in the Prome and Toungoo districts in Lower Burma; while new surveys were instituted in Jalpaiguri and in the Lansdowne Cantonment.

These operations have been continued in Chittagong, Tipperah and

#### **Cadastral Surveys.**

Jalpaiguri, in Bengal; in Garhwal and the Rampur State in the N.-W. Provinces; in Kamrup, Nowgong, Darrang and Sylhet, Assam; in Mandalay, Meiktila, Thongwa and Amherst, Burma; and in Pooree and Cuttack, Orissa. Traverse Surveys were carried on by two parties, one in Mandla, Central Provinces, and the other in three districts of Lower Burma.

The work of the publishing offices of the Survey has progressed steadily, though there are no new publications

#### **Publishing Offices.**

of special importance to note. A third edition of the 32-mile map of India, with considerable extensions in Baluchistan and Burma, is well advanced. Constant additions are being made to the maps of the new country in Upper Burma and our S.-E. Frontier. The heliogravure process continues to make good progress in the photographic office, and it is proposed to bring out the sheets of the new survey of the City of Calcutta by its aid on a reduced scale. During the year a process of photo-block printing in half tones was introduced, and seems likely to have many useful applications.

There is nothing very special to record regarding Asiatic Geography during 1891 except Lord Lamington's journey

#### **Trans-Frontier and other Geographical Explorations.**

from Siam to Tonquin, but nevertheless the year has not been an unfruitful one, and has been specially marked by the publication of some of the important results obtained during the explorations in Central Asia that had been in progress in the previous few years. The need for a more exact knowledge of our border lands on our own part is yearly becoming accentuated by the steady advance of our European neighbours on the N.-W. and S.-E., and though there is reason to believe that the subject is receiving due attention, it is to be regretted that some of the results which might be of scientific interest are not permitted to appear.

*Siam.*—The *Proceedings of the Royal Geographical Society* contain a very interesting account by Lord Lamington of his journey through the Trans-Salween Shan States to Tonquin. Starting from Bangkok he proceeded to Chiang Mai, where he joined Mr. Archer, the British Consul, who was then starting on an expedition to settle the frontier between the Shan States and Siam, and accompanied him as far as

Hong Lük. Then diverging to the east he went on towards Tonquin, through the Sipsong Pana, passing through nearly 300 miles of hitherto quite unknown country and reaching French Territory at Muang Jhong. Thence he went to Lai Chau on the Black River, which he descended by boat to Cho Bo, the highest point navigable by steamers, owing to a *barrage* of rocks. From here he went down through an open fertile and thickly populated country to Hanoi. He was exceedingly well received by the French officers he met; and though his paper is entirely geographical, some light is thrown upon the unhealthy nature of the country and the difficulties the French have to contend against in settling their new possessions. It also shows how the French possessions are being advanced towards the line of the Mekong. Lord Lamington found the greatest difference in salubrity and productiveness between the Shan States and the country he passed through along the Black River, the advantage being with the former. He made a very careful survey of his route, and his complete map when published will be a valuable addition to our knowledge of this part of our Eastern Trans-Frontier.

Mr. James McCarthy, Superintendent of Surveys in Siam, has fixed the longitude of various places in Siam by telegraph, among them Luang Prabang (Pagoda),  $102^{\circ} 05' 56''$  E., and Korat (Court House)  $102^{\circ} 06' 52''$  E.

*French Possessions.*—The question of the navigability of the Mcnam-Kong (commonly but erroneously called the Me-Kong; its real name being the Nam-Kong, or River Kong—*Me*, an affix meaning mother) still continues to excite the interest of the French, with the object of developing trade with the country about its upper waters. A launch was to have been sent up with this object, but was unable to pass the Kong rapids. It has been found that a steamer service could be maintained all the year through for that part of the river comprised between the junction of the Se-mun and the sea, and from July to January or February for the part lying between Luang Prabang and Kemmarat. The Siamese are also alive to the importance of steam navigation on the upper part of the river, and are said to be arranging for the transport of a launch from Bangkok.

The *Comptes Rendus* of the Paris Société de Géographie contain a short account of an expedition made by Father Guignard, a missionary in South Tonquin, to the upper part of the river Ngan-Kha or Song-Mo. He started from Ka-chai with a military reconnoitring party. The river was navigable for three days in junks, after which canoes had to be used and often had to be towed. At the ruined village of Cua Kao, the Ngan Kha divides into the Nam Mo, going east, and the Nam Non,

going north. Father Guignard followed the former to Tu-do on the frontier of Tran Ninh, which although belonging to Annam, is occupied by Siamese. Here he visited the Meos, a tribe of Chinese origin who have fine cattle, fruit trees, especially peaches, and a very large and productive species of maize; but they are ruined by opium smoking. The wild Meos live on the top of the mountains. From Muong Xa the party followed the Nam Tam till it joined the Nam Non at Muong Lam; then the Father went on up the Nam Non, which was a succession of rapids and waterfalls, to Hat Bo and afterwards, to the Muong Mat, to obtain the release of two Christian captives. He returned in boats furnished by the Muong Mat, most probably down the Nam Mat, to Muong Lam, and thence he proceeded to Ka-chai *viâ* Khanh Trap.

Under the superintendence of Captain Bauchet new maps of the French possessions in S. E. Asia are being prepared at Hanoi, (1) in 40 sheets on the scale of 1: 200,000, (2) a reduction of the above map on the scale of 1: 500,000, and (3) a general map on the scale of 1: 1,000,000. The maps are printed in colours.

*Eastern Tibet.*—In the *Proceedings of the R. G. S.* Mr. A. E. Pratt has published a very interesting narrative of two journeys from Shanghai and Hankow, made in 1889 and 1890, to Ta-Tsien-lu on the eastern borders of Tibet. In the course of the second journey he visited Mount Omei, 11,000 feet high, and a Buddhist place of pilgrimage of great sanctity. Here he several times witnessed the phenomenon known as the "glory of Buddha." Mr. Pratt was engaged in collecting natural history specimens, and the paper contains information regarding many new plants, &c., found. He met Prince Henry of Orleans and M. Bonvalot at Ta-tsien-lu, and it was by Mr. Pratt's instrumentality that the collections made by the Prince were safely despatched to Europe.

A full account of Mr. Rockhill's journey from China in the direction of Lhasa, noticed in last year's address, has also been published during the year.

*Central Asia, Eastern Turkestan.*—In the *Iswestia* of the Russian Geographical Society, the brothers Grum-Grjinnailo have given an account, with a map, of the results of their expedition to the Tian Shan oases. This account has been translated by Mr. E. D. Morgan, and is published with the map in the *Proceedings of the Royal Geographical Society*. The route taken by these travellers was noticed in last year's address, and their observations and collections are now being worked out. An examination of the hypsometrical observations made by Major-General Dr. von Tillo, has revealed the existence of a depression in the hollow between the Tian Shan and the Chol Tau range of the Altaïs near Lukchin, in the neighbourhood of Turfan, from which it would appear that Lukchin is about

164 feet below the level of the sea, with an approximate error of  $\pm 82$  feet. To connect this point with a series of levels, to found a meteorological station there, and to take pendulum observations, would be objects of the highest scientific interest; and Major-General von Tille proposes to visit the spot and investigate this remarkable depression, which was observed by Colonel Pietvsoff as well as the brothers Grum-Grjimailo. Another point of interest, as reported in the above account of these travels, is the existence of Uighur ruins at Syngym, an oasis in the Tinge-tau mountains, where it is said that gold and silver things, copper vessels and censers, &c., are found; also of Uighur writings, which are frequently found with grains of wheat in a particular kind of earthenware vessels; as well as leadets with inscriptions on them, enclosed in horn and wooden boxes, but so brittle that they often fall to pieces on being handled. These last seem to be specially interesting in connection with the birch-bark MSS. found by Lieut. Bower.

The same account gives notes on the large Natural History collections formed by the brothers, amounting to about 13,000 specimens, which are now being worked out, the Russian Government having voted a sum of 24,000 roubles for publishing the work of Gromchevski, Pietvsoff and Grum-Grjimailo.

Further accounts of the explorations in the neighbourhood of the Astyn Tagh Mountains, made by Colonel Pietvsoff's expedition, have been published. The expedition returned to Russia last March, having made a topographical survey of 5,000 miles, and 50 determinations of geographical positions, besides magnetic and other observations. They have also gathered vast geological, botanical and zoological collections, about 40 camel loads.

From a paper read before the Geographical Society of Berlin by Herr L. Conradt, who accompanied Gromchevski as naturalist, it would appear that Chinese Eastern Turkistan, a region about 320,000 square miles in extent, is really a desert, except about the river system of the Tarim, where there are cultivated oases. The tyrannous government of the Chinese is likely in case of a revolution to give way to the Russian dominion, which is popular among the Muhammadans of Central Asia.

Russian activity in Central Asia has been sustained, and further advances have been made. Under the leadership of Capt. Bachewski, an expedition left Samarkand in May, with the object of exploring routes in the Pamir and the passes over the Hindu Kush into Kafiristan, supplementing Gromchevski's work. This party claimed the Pamirs as Russian territory and warned off our English explorers.

M. Katanoff was exploring in the Tian Shan, principally in the interests of ethnography, and was to spend the autumn in Turfan and the winter in Kuldja.



M. Dutreuil de Rhins, the author of an exhaustive monograph on Central Asia, has, at the instance of the French Academy, undertaken a scientific exploration in Chinese Turkistan accompanied by M. Grenard, a student of the School of Living Oriental Languages. At the last news he was at Khotan and would winter there. He had made meteorological and astronomical observations on his way, and had accurately determined the position of Khotan astronomically, as  $37^{\circ} 6' 35''$  N. lat.,  $79^{\circ} 53' 15''$  E. long. from Greenwich, and 4639·191 feet above sea-level. He had also been exploring the country about Keria and Polu.

Mons. J. Martin, whose journey was noticed in the Address for 1890, appears to have met with many misfortunes. An attempt to proceed from Sutscheu from east to west along the northern slopes of the Altyn Dagħ to Lob Nor, which might have settled the question of the existence of the lake, failed owing to his being unable to obtain guides. He was obliged to make a detour across the Gobi, and proceeding *viâ* Hami, Karashar, and along the Tarim to Lob Nor, and then along the Cher Chen river, he arrived at Cher Chen on the 20th June and returned to Russia.

Accounts of their adventurous journey through Asia have appeared from the pens of Prince Henry of Orleans and Mons. Bonvalot. The *Bulletin de la Société de Géographie* contains a short account by the Prince, illustrated by an excellent map. A complete history of the journey by Mons. Bonvalot has been published under the title of "Paris à Tibet," and also an English translation of it.

In the *Zeitschrift der Gesell. für Erdkunde zu Berlin*, Dr. G. Wegener has very fully discussed the orography of the Kuen Lun range, which has a length of about 2,390 miles with a maximum breadth of about 500, and may be roughly estimated to cover 425,000 square miles. He also discusses the geology of the Kuen Lun and surrounding regions, and the observations of Richthofen, Loczy and other travellers. The paper is illustrated by a map containing much that is new, and accompanied by a tracing showing the routes of travellers in Central Asia.

The *Proceedings R. G. S.* for July, contain a very interesting paper entitled, "Our present knowledge of the Himalayas," by Colonel H. C. B. Tanner, late of the Survey of India, an officer who probably knows the different parts of the Himalaya mountains better than any other.

Under the auspices of the Royal Geographical Society an expedition has been arranged for to explore the high peaks and glaciers of the Kara-Koram. It will be under Mr. W. M. Conway and the Hon. C. G. Bruce (5th Gurkhas), who will be accompanied by Mr. Rekenstein, a practised Alpine climber, Mr. McCormick, an artist, and a Swiss guide.

They propose to make the Baltoro glacier in Baltistan their centre of operations at first.

• The *Proceedings R. G. S.* contain an account of Major General T. E. Gordon's journey from Teheran to the Karun and Mohamrah; and also a paper by Mr. C. E. Biddulph of his journey in company with Capt. Vaughan across the western portion of the Great Persian desert, *viâ* the Siah Kuh mountains and the Darya-i-Namak, in which he shows that what is called the Great Salt Desert is not salt throughout; that the deposit known as *kavir* is the same saline efflorescence found in Sind and the Panjab; and that the Darya-i-Namak, or sea of salt, is an instance of a salt formation quite distinct from the ordinary *kavir*.

The *Scottish Geographical Magazine* contains an account by Captain A. C. Yate of his journey to Taskent, and is accompanied by a very useful orographical map of Central Asia.

In the same Journal, for March, Mr. J. G. Bartholomew gives a very valuable list of published maps of Asia, with a map showing the extent and value of the geographical surveys. Out of 17, 250,000 square miles only about 750,000, or one twenty-third, are absolutely unexplored.

Dr. J. Burgess, C. I. E., has a paper in the same Journal on "Mapping and place-names in India," in which he draws attention to the correct representation of place-names in maps, and to the necessity for an index of geographical positions—a want which measures are now being taken to supply, though it must necessarily be a work of time.

In this brief and imperfect review of the scientific and literary work of the past year, done by workers both in and outside of India, enough will, I trust have been said to show that considerable additions of high interest and value have been made to our knowledge of Indian subjects in many departments. No doubt it is true, and the complaint has actually been made to this Society, that most of the papers contributed to the *Journal* possess little interest except to specialists in their particular lines, and are not attractive to the general reader. This cannot be denied, and indeed the fact constitutes the very reason for our existence. We are here, as a Society, for the purpose of advancing the bounds of knowledge in different directions; and though articles of popular interest are freely admissible into our pages, we have to march in line with scientific workers in the Asiatic field all over the world; and if we are to retain our position, our contributions to the general sum of knowledge must keep pace with the progress of research, in other words, must be for the most part abstruse and technical. I may add, on this point, that there is one direction in which members of our Society can very usefully promote our interests. The Library of the Society is intended, not

merely for reference within these walls, but also for the use of members living at a distance, who are entitled to take out books subject to certain necessary (and not very onerous) conditions. A valued member of the Society, himself a worker in the field of anthropological inquiry, has taken the trouble to specify a number of books which he wished the Society to procure in order to assist him in his own investigations. If other members, working in different fields, would help the Library Committee with similar suggestions, the effect would be to increase the value of the Library for practical purposes and its usefulness to members; and the Council would, I may safely say, be very ready to meet such suggestions so far as it lay within their means to do so.

In his Annual Address last year my predecessor, Mr. Beveridge, threw out a suggestion that, instead of monthly meetings at which subjects of all kinds were discussed indiscriminately, we should have separate fortnightly meetings for the discussion alternately of literary and archaeological subjects, and of those relating to the Natural Sciences. Mr. Beveridge observed that "under the present system, only about half of the audience is interested in any paper that is being read. As a rule the zoologist does not care for inscriptions or coins, and the numismatist or philologist does not care for animals or plants." This suggestion has since been repeated; but so far as I could understand the general sense of the Society, it was rather to the effect that the proposal left out of sight that considerable number of members who, without being specialists in any subject, took a general interest in all. These are the members whom we wish to attract to the Society, in the hope that some of them may be stimulated, by what they see and hear at our monthly meetings, to devote themselves to some branch of inquiry, it may be scientific, or it may be literary, which may from time excite their interest. Nor do I think that the restriction of interest to one branch of knowledge or the other is, even among specialists, so absolute as is sometimes supposed. If so, it would be hard on such members to compel their attendance at two meetings where one has hitherto sufficed.

Gentlemen, I beg to offer you my cordial thanks for the honour that you did me last year in electing me your President, and for the patient attention with which you have listened to this address.

The PRESIDENT announced that the Scrutinisers reported the result of the election of Office-Bearers and Members of Council to be as follows:—

*President.*

Hon. Sir A. W. Croft, K. C. I. E., M. A.

*Vice-Presidents.*

J. Wood-Mason, Esq.  
 A. Pedler, Esq., F. C. S.  
 C. J. Lyall, Esq., B. A., C. I. E.

*Secretaries and Treasurer.*

C. R. Wilson, Esq., M. A.  
 Dr. J. H. Tull Walsh.  
 C. Little, Esq., M. A.  
 Pandit Haraprasád Shástri, M. A.  
 Dr. W. King, B. A.

*Other Members of Council.*

Dr. A. Crombie.  
 Bábu Pratápachandra Ghosha, B. A.  
 L. de Nicéville, Esq., F. E. S.  
 Colonel H. S. Jarrett.  
 C. H. Tawney, Esq., C. I. E.  
 Dr. Mahendralál Sarkár, C. I. E.  
 E. C. Cotes, Esq.  
 Hon. Justice Amir Ali, C. I. E.  
 Dr. D. D. Cunningham, F. R. S. •  
 Colonel J. Waterhouse, B. S. C.  
 Pandit Maheshchandra Nyáyaratna, C. I. E.

The meeting was then resolved into the Ordinary Monthly General Meeting.

HON. SIR A. W. CROFT, K. C. I. E, M. A., President, in the chair.

The minutes of the last meeting were read and confirmed.

Thirty-five presentations were announced, details of which are given in the Library List appended.

The following gentleman, duly proposed and seconded at the last meeting of the Society, was ballotted for and elected an Ordinary Member:—

O. G. Arthur, Esq., C. S. •

The following gentlemen are candidates for election at the next meeting:—

Hon. Raja Oodaypratab Sing, Raja of Bhinga, Oudh, proposed by J. Woodburn, Esq., C. S., seconded by C. Little, Esq., M. A.

Bábu Gopal Ballabh Das, M. A., proposed by Bábu Man Mohan Chakravarti, B. L. seconded by C. R. Wilson, Esq., M. A.

Prof. Nrisimha Chunder Mukerjee, Calcutta, proposed by the Hon. Sir A. W. Croft, seconded by C. Little, Esq., M. A.

The following gentleman has expressed a wish to withdraw from the Society :—

Kumar Sarat Chandra Singh.

The Secretary reported the death of Sir G. B. Airy, K. C. B., an Honorary Member of the Society.

Babu Sarat Chandra Das read a short note on the origin of the Tibetans.

#### THE ORIGIN OF THE TIBETANS.

(*From Tibetan works.*)

Tibet was known to the early Indians by the name of Himavata, (*Khawa-chan* in Tibetan) under which appellation it also occurs in the Mahabharata. During the reign of King Asoka, the country to the north of the Himalayas was first explored by his generals and called Himavata. Buddhism rapidly spread there and gained much importance on account of the learning of its teachers. In the schism which took place after the second Council in Buddhism, the name Himavata was given to the school that prevailed in Tibet. The Chinese pilgrim Fahian visited the headquarters of the Himavata school in Western Tibet which, in vulgar language, was called Hima-desa, *i. e.*, the snowy country. In the beginning of the seventh century, the first Tibetan who came to Magadha to study the art of writing was called Sambhoṭa, the excellent Bhoṭa. From that time Tibet has been known to the people of India by the name of Bhoṭ or Bhoṭa. Hence the general epithet of a native of Bhoṭ was Bhotya or Bhotia. The Tibetans, when the art of writing was first introduced in their country about A. D. 630 to 634, endeavoured to reproduce the name Bhoṭ in their language with the newly formed Tibetan character b, o and d, *i. e.*, Bod, the literal meaning of which is to call or invoke. But in the Tibetan language the letter B is pronounced as p and the last consonant of a word is seldom or very imperfectly pronounced. Hence the name written as Bod becomes in pronunciation Pö.\*

The name by which Tibet is known to the Tibetans is therefore Pö. The name Tibet by which Marcopolo designated the country, seems to have been the corruption of "*Tu-bod*," the epithet by which the

\* In the history of Sikkim the name *Tribota Narendra* (Tibetan king) appears to be the principal designation of the first Mahārāja of Sikkim who came from Tibet.

country was known to the Tarks and Tartars. In the Travels of Solyman the Arab merchant, which, according to Reinand, was published in 850 A. D., the name Tibet was first mentioned. The Chinese name for the whole country is Tufan. From an inscription on the *Doring* monolith of Lhasa dated 822 A. D., in Chinese and Tibetan character, the name Bod is written with the Chinese initial Fan. Hence it appears that the Chinese name Tufan is the same as Tubod which is still the Mongolian name for Tibet. The name Weitsang applied to Tibet by the Chinese is compounded of the two names of the two principal provinces of the country, viz., Wu and Tsang. The names Hsi-Tsang and Hsi-fan (in which hsi=west) are also indiscriminately applied to the country by the Chinese.

The name Alakávati by which Tibet is also known to the Indians may be traced in the term Changlo-chan by which the part of the province of Tsang, lying to the north of the Chomo-Lhari and Kang-chan Junga mountains, is designated. The Tibetan word Changlo-chan (in which Changlo=*Alaká* and Chan=*vati*) signifies *Alakávati* or the place where men and women wear flowing or braided locks. The custom of wearing the *Changlo* exists, even now, as it existed before, in Tibet. There the men wear only one plaited tail while the women enjoy the privilege of braiding their flowing hair into two. Tibet was for this reason designated Alakávati by the Indians, though the Tibetan equivalent of that name was applied were to a part of Tsang by the Tibetans themselves. The grove of Changlo-chan situated on the river Painam with its attractive scenery, forms an important landmark to travellers who, proceed to Lhasa from the south, *via* Gyan-tche.

According to Sum-pa the great Tibetan Historiographer and also the early records of Tibet, it is mentioned in certain Chinese histories that the people who inhabited the Arya-bhumi, the blessed land of the Hsi-thian (western heavens) originated from the gods, the people of China, the flowery country—sprang from the dragon, the offspring of the heaven and the earth, the Mongolians originated from the demons and last of all the Tibetans descended from the Yakshas, a kind of mischief-making demigods. The Hindus regarded the Saki-Tartars and the early Persians, who worshipped the *Ahura* (Asura) and lived at the foot of Meru, i. e., about the Parapomissus\* mountains as the descendants of the Asuras who waged war on Indra, the Emperor of India and his nobles. The Hindoos designated the Tibetans by the name of Huna and Gana or the legions of Kavera, the god of wealth. From the internal evidence of the classical writings of the Hindoos, it appears that the specific designation which they had for the Chinese really signified the Tibetans.

\* Para and upa Nishad mountain.

In the passage of the *Udyoga parva* "Bájináñcha Sahasráni Chinadesodbhavánicha" the Tibetan pony was evidently referred to.\*

In the Buddhist work called *Sambhara Samudra* Tibet is mentioned as one of the 24 abodes of the celestial nymphs, where sages still in their human shape, resided in peace. Even when Buddha preached his doctrine in India, there lived, in the country of Himavata men, who by the dint of their moral perfections, were able to achieve wonders. The place where these intellectual giants, male and female, called in Tibetan *Pah-vo* and *Pah-mo* lived, is conjectured by the historians of Tibet to be the district of *Pha-bonkha* near Lhasa. The Mahabharata also tells us that the sacred abode of the divine sages was a place in Himavata called *Paraloka*, beyond the snowy Himalayas, where to the holy brotherhood there was immunity from disease and the troubles of a worldly life. The author of the *Sûrya Siddhanta* called this country by the name of *Siddha-pura*, the land of perfection and accomplishment, and the description that he has given of the place tallies with that of the Mahabharata.

The name *Pur-gyal* by which Tibet was called in early times, as may be gathered from Pon, as well as old Buddhist works, may have been derived from the name *Para loka* where *loka* means world and *gyal* (dominion). *Pur* in Tibetan means "the dead." Hence *Para loka*, the future world, may be brought very near to the meaning of the name *Pur-gyal*†.

The legendary accounts of Tibet as preserved in the *Debther Nonpo* and other works give different stories about the origin of the Tibetans. It is said that in early times a race of people called *Noi-jin*, (*yaksha*) i. e., the mischief-makers inhabited the country. Though they were rich, having in their possession precious stones and metals, yet they used to do mischief to each other and to live in a state of continual warfare. So late as the first century B. C. twelve *Noi-jin* chiefs are said to have partitioned the country among themselves, a few years before the Indian prince *Nyah-thi-tsanpo* visited Tibet. The tradition about the Tibetans as related in *Gyalrab* and other works which is credited by the people at large as the true story† of their origin, is both interesting and curious. A certain monkey, having gone to Tibet, lived in a solitary

\* In the early records of Tibet, it is mentioned that the Chinese language was called *Nagabhasha* by the Indians, while Sanskrit was called the language of the gods; and that the people who traded with India, coming from beyond the seas with such commodities as satin (*chinám sika*), camphor porcelain, &c., were called the *Nagas*. From this, it appears, that in olden times the merchants, who coming from the direction of the Indian Ocean used to trade with India, were no other people than the Chinese. These *Naga* merchants had settlements at *Pátaliputra* and other great centres of trade.

† Some identify this monkey with *Hanumana* the hero of the *Ramayana*.

cavern, of a dark brown rocky cliff. There he meditated in peace on the moral perfections of the saints. Once, while he was engaged, in meditation, an Amazonian woman, Rakshasi, in the garb of a beautiful maiden, came to see him. The saintly appearance and character of the monkey ravished her mind, in consequence of which she paid him frequent visits. At last she opened her mind to him and entreated him to accept her as his companion. At this, the monkey who being tired of the world had besought himself to the solitudes of the Himavata, become very much embarrassed. When the woman again approached him with the same prayer, he replied ; " I am a devotee of Arya Lokeshvara and have taken the vows of purity. How is it possible for me to enjoy your company ?" If you permit me to serve you, said the woman, your purity will increase, but if you do not allow me to be your wife I shall put an end to my life and thereby make you the cause of my death. So saying she made him a profound salutation. Seeing his monkey holiness unmoved she fell prostrate on the ground and with tears flowing from her eyes thus implored :—" Oh prince of the monkeys, do vouchsafe unto this suppliant woman your mercy and love. At length the kind-hearted monkey moved by compassion, proceeded to the sacred hill of Potala on the top of which stood the mansion of the divine saint Lokeshvara. Arrived at the gate he thus invoked him :—" Oh thou, merciful Lord, Protector of the world, accept my prayers. Since becoming a devotee of thee this humble monkey has been keeping his vows just as one preserves his life. While I was engaged with my sacred duties in a solitary cavern, a maiden of unsurpassed beauty came to see me. She does not leave me alone. By her constant attendance upon me, my vows are about to be broken. At this critical time, command me, Oh saint of saints, how to behave." To this a voice from heaven replied :—" Take her for your wife. A second voice from the saintly goddesses Tara and Bhrukuti said : That is excellent, that is excellent. Then the patriarch monkey and the woman lived as husband and wife and in course of time they got six children. These being of mixed origin, partly resembled their father and partly their mother in the inward and outward features. In their traits of character they differed much from one another. The patriarch kept them for a period of three years in the forest called the grove of peacock's assembly. Then more children were born. They lived upon wild fruits during a part of the year and when their supply diminished or became exhausted the monkey children lifting their arms cried ;—" Father, what to eat ? mother, what to eat ? The patriarch now reflected within himself :—" What have I done ? Why have I given existence to so many that are starving for want of provisions ? Oh merciful Lord, it was at thy command that I gave birth to



this numerous progeny. It was not for satisfying any lust or unholy desire that I permitted myself to be united with the demon of a woman. It was simply out of compassion that I took her. Is compassion, therefore, the cause of this misery of myself and children? How am I to be saved from this mire of worldly troubles? Grant me thy grace and tell me how I am to support my children. Then a voice from heaven was heard to say:—Your children shall be protected by me, Oh prince of monkeys, do not be concerned at all. Then the Lord Lokesvara proceeding towards the deep recesses of the Sumera Mountain brought the seeds of six kinds of grain, such as barley, wheat, peas, oats, maize and buck wheat and scattered them on the ground. So these grains grew up uncultivated by the hand of man. Then the great patriarch took his children to the table land of *Kong-poi ri*, where the grain grew wild, and told them *Ta-zoi Zoi-dang*, (now then eat and eat) From that time, the rich and fertile plains of Che-thang became known by the names of *Zo-thang* and *Tazoi*. Then the children of the patriarch monkey began to subsist on these six kinds of grain eating them to their heart's content. From the effect of the grain on their constitution, their tails and the hair of their body grew shorter and at last the former totally disappeared. In course of time they learnt to talk and to live as human beings. Subsisting on the wild and uncultivated grains of Tibet, the earliest people of Tibet lived, for a long time, in a state of nature. Then they used to clothe themselves with leaves and keep themselves warm by means of the barks of trees. On account of their mixed parentage, the Tibetans have inherited from the side of their father, the saintly patriarch, the virtues of good temper, faithfulness, compassion, industry, love of pious actions, politeness in language and skilfulness in conversation. From their mother's side they have inherited wrathfulness, a passion for gain and trade, cupidity, sense of rivalry and emulation, the habit of breaking into loud laughter, a powerful physique, intrepidity, impatience, speculativeness, delighting at other's faults and fierceness of character. At this period, forests of trees multiplied in the bleak plateau of Tibet, the valleys and ravines were filled with water. The glacial lakes were drained by the overflowing of their banks, and cultivation of the plains commenced, and towns and villages were founded.\*

\* "It is asserted that Tibet, in remote times, was almost totally inundated; and the removal of the waters that covered its surface, is imputed to the miraculous interposition of some object of their worship, whose chief temple is reported to be at *Darjeda*, (*Vajra san* in Buddha) *Gaya*. He, it is said, in compassion to the few inhabitants which Tibet contained, who in that age were little better than monkeys, drew off the waters through Bengal, and by sending teachers among them humanised

Long before the advent of Buddha, when the countless armies of the Kuru were defeated by the Pandus and the hero Duryodhana fell in the battle-field of Kurukshetra, one of his generals named Rupati dressed in woman's attire fled towards the Himalayas with one thousand followers. For fear of being pursued by the enemy, he penetrated into the country of Himavata and settled there with his men. At that time, the aborigines of Tibet were still wild and uncultured and lived in caves and holes dug in mountain sides. In course of time, the Indians visited the country and multiplied their settlements. The people of Hor (Tartary) also came to Tibet. These three people mingling together, produced the Tibetans proper, and Avalokitesvara, the patron deity of Tibet, feeling compassion for the benighted hordes chose to appear among them as a Lama or a king. It is on this account that even infants spontaneously lisp, in the sacred six syllables 'Om mani-peme-hum.

A scion of the Pandava dynasty after wandering in the Himalayas, as a traveller, at last entered the country of Himavata by crossing the pass over Lhari-tse now called Yarlha-shambo. From the top of this mountain he descended to the valley of Yarlung, which on account of its fertility as well as scenery and also being the place where the first king was anointed, was called *Tsan-thang go-shi* (King's plain with four entrances). At this time twelve chief herdsmen had been pasturing their cattle in that plain. As soon as they saw the solitary prince coming towards them from an unexpected quarter, they were struck with wonder and curiosity, and assembled round him. When asked who he was and whence he came, the graceful youth not knowing their language pointed his fingers to the top of Lhari-tse which he had crossed. The Tibetans inferred from it that he was *devaputra* the son of a god come from heaven, descending the Lhari-tse (the top of the god's mountain). They conferred together what to do with him and at last resolved to make him their king. They then placed him on a chair resembling a *dooly* and conveyed him to Yam bu la gang. From being carried on the back (*Nyah*) of the people in a chair (*thi*) and made king (*Tsan-po*) he was called Nyah-thi-tsan-po.\* The Tibetans under his direction built for him a lofty house of stone called *Yambu lha khar*

the wretched race, who were subsequently to people it. In this belief of the Tibetans, which is too general to be totally rejected, it is not difficult to discover strong traces of the universal deluge, though the tradition, as might naturally be expected, is obscured by fable, and disfigured by a mixture of absurdity."

Turner's Embassy.

\* There are different accounts of the parentage of this prince in the records and ancient histories of Tibet.

(the god's house at Yambu). It was, therefore, the first palace that was erected in Tibet. Nyah-thi tsanpo trained the Tibetans in the art of war, established a system of government hitherto unknown to them, and gradually extended his sway over the whole country by bringing to subjection the petty chiefs who ruled over the different provinces. He married Nam-mug-mug, the handsome daughter of a Tibetan chief, and by her got So-thi-tsanpo who succeeded him on the throne. At this time the Bon religion was introduced into Tibet from the country of Sum-bha.

The following paper was read:—

*The Buddhist Pictorial Cycle of Existence (with 2 plates and a diagram)*—By L. A. WADDELL, M. B.

The paper will be published in the Journal, Part I.

### LIBRARY.

The following additions have been made to the Library since the Meeting held in January last.

### TRANSACTIONS, PROCEEDINGS AND JOURNALS.

*presented by the respective Societies and Editors.*

Baltimore. Johns Hopkins University,—Circulars, Vol. XI, No. 94.

Berlin. Der Koniglichen Akademie der Wissenschaften zu Berlin,—  
Abhandlungen, 1890.

———. Sitzungsberichte, I-XL.

Bombay. The Indian Antiquary,—Vol. XX, Part 254.

Calcutta. Agricultural and Horticultural Society of India,—Journal,  
Vol. IX (New Series), Part I.

———. Indian Engineering,—Vol. XI, Nos. 2-5; and Index to  
Vol. X.

———. Photographic Society of India,—Journal, Vol. V, No. 1.

Copenhagen. K. Nordiske Oldskrift-Selskab,—Aarboger, Raekke II,  
Bind VI, Hefte 3.

London. Anthropological Institute of Great Britain and Ireland,—  
Journal, Vol. XXI, No. 2.

———. Nature,—Vol. XLV, Nos. 1157 and 1158.

———. The Academy,—Nos. 1024 and 1025.

———. The Athenæum,—Nos. 3347 and 3348.

Lyon. La Société D'Anthropologie de Lyon,—Bulletin, Tome. IX,  
No. 2.

Mendon, Ill. *The American Antiquarian and Oriental Journal*,—Vol. XIII, No. 6.

Mussoorie. *The Indian Forester*,—Vols. XVII, No. 12; XVIII, 1.

Paris. *Du Muséum d'Histoire Naturelle*,—*Nouvelles Archives*, III<sup>e</sup> Série, Tome II, Fasc. 2; III, Fasc. I.

———. *La Société D'Anthropologie de Paris*,—*Bulletins*, IV<sup>e</sup> Série, Tome I, Fasc. 4; II Fasc. 1 et 2.

———. *La Société de Géographie*,—*Compte Rendu des Séances*, Nos. 19 et 20, 1891.

———. *La Société Zoologique de France*,—*Bulletin*, Tome XVI, Nos. 3, 4 et 8.

———. *Mémoires*, Tome III, No. 5.

———. *Musée Guimet*,—*Annales*, Tome XIX.

———. *Revue de l'Histoire des Religions*, Tome XXIII, Nos. 1-3; XXIV, 1.

———. *Revue Géographique*,—Tome XVI, Nos. 192 et 193.

Pisa. *La Società Toscana di Scienze Naturali*,—*Atti (Processi Verbal)*, 10 Maggio al 5 Luglio 1891.

Rio de Janeiro. *Observatorio do Rio de Janeiro*,—*Revista do Observatorio*, Anno VI, No. 10.

Schaffhausen. *La Société Entomologique Suisse*,—*Bulletin*, Tome VII, Nrn. 1; VIII, 6-8.

St. Petersburg. *La Société Impériale Russe de Géographie*,—*Journal*, 1890.

———. *Proceedings*, Tome XXVI, Nos. 6; XXVII, 5.

Sydney. *Linnean Society of New South Wales*,—*Proceedings*, Vol. VI (2<sup>nd</sup> Series), Part 2.

Taiping. *Perak Government*,—*Perak Gazette*, Vols. IV, Nos. 40 and 41; V, 1.

Toronto. *Canadian Institute*,—*Transactions*, Vol. II, Part I.

Vienna. *Der Kaiserlichen Akademie der Wissenschaften*,—*Almanach*, 1890.

———. *Archiv für Österreichische Geschichte*, Band LXXVI, Hälfte 1 und 2; LXXVII, I.

———. *Denkschriften (Mathematisch-Naturwissenschaftliche classe)*, Band LVII.

———. *(Philosophisch-Historische classe)*, Band XXXVIII und XXXIX.

———. *Fontes Rerum Austriacarum*, Band XLV, 11 abth, Hälfte 2.

———. *Sitzungsberichte (Mathematisch Natur-*

wissenschaftliche classe). Abtheilung I, Band XCIX, Heft 4-10; Abtheilung IIa, Band XCIX, Heft 4-10; Abtheilung IIb, Band XCIX, Heft 4-10; Abtheilung III, Band XCIX, Heft 4-10.

Vienna. Der Kaiserlichen Akademie der Wissenschaften,—Sitzungsberichte (Philosophisch-Historische classe), Band CXXII-CXXIII.

———. Wiener Entomologische Zeitung,—Jahr XI, Heft I.

### BOOKS AND PAMPHLETS.

*presented by the Authors, Translators, &c.*

BLANFORD, W. T., F. R. S. The Fauna of British India, Mammalia, Part II. 8vo. London, 1891.

BURGESS, JAMES, LL. D., C. I. E. The Orthography of Foreign Place-Names. (Reprinted from the Scottish Geographical Magazine for January 1892.) 8vo. Edinburgh, 1892.

BYSACK, GAUR DAS. Kalighat and Calcutta (Reprinted from the Calcutta Review, Vol. XCII, No. 184). 8vo. Calcutta, 1891.

HAECKEL, ERNST. Anthropogenie oder Entwicklungsgeschichte des Menschen, Theil 1 und 2. 8vo. Leipzig, 1891.

HAYTER, H. H. Victorian Year-Book for 1890-91, Vol. I. 8vo. Melbourne, 1891.

MEDLICOTT, H. B. The Evolution of Mind in Man. 8vo. London, 1892.

NYĀYARATNA, MAHĀMAHOPĀDHYAY MOHĒSA CHANDRA, C. I. E. Brief Notes on the Modern Nyaya System of Philosophy and its Technical Terms. (Read at the Ninth International Congress of Orientalists, 1891.) 8vo. Calcutta, 1891.

———. Vartamana Varsher Sandhi Pujar Samaya Nirnaya. 8vo. Calcutta, 1891.

OLCOTT, HENRY S. A United Buddhist World (Reprinted from the Theosophist for January 1892.) 8vo. Madras, 1892.

SARMA, PANDIT BHIMA SEN. Manavādharmā Sāstra, Vol. I, Nos. 8 and 9. 8vo. Allahabad, 1891.

### MISCELLANEOUS PRESENTATIONS.

Catalogue des Livres de La Bibliothèque de L'Académie Royale des Sciences, des Lettres et des Beaux-Arts de Belgique. Seconde Partie. 8vo. Brussels, 1890.

L'ACADÉMIE ROYALE DES SCIENCES, DES LETTRES ET DES  
BEAUX-ARTS DE BELGIQUE, BRUSSELS.

Beschrijving der Oudheden nabij de grens der residentie's Soerakarta en Djogdjakarta, door J. W. Ijzerman. Text and Atlas. 4to. Batavia, 1891.

BATAVIAASCH GENOOTSCHAP VAN KUNSTEN EN WETENSCHAPPEN, BATAVIA.

Report on the Administration of the Central Provinces for the year 1890-91. Fcp. Nagpur, 1891.

CHIEF COMMISSIONER, CENTRAL PROVINCES.

Contributions to Canadian Micro-Palaeontology, Part III. By Prof. T. R. Jones. 8vo. Montreal, 1891.

GEOLOGICAL AND NATURAL HISTORY SURVEY OF CANADA.

Botany. Bulletin No. 4. Contributions to the Queensland Flora. By F. M. Bailey. (Bulletin, Department of Agriculture, Brisbane, No. 13) 8vo. Brisbane, 1891.

DEPARTMENT OF AGRICULTURE, BRISBANE.

Report on the Administration of Bengal, 1890-91. Fcp. Calcutta, 1891.

GOVERNMENT OF BENGAL.

The Indian Antiquary, Vol. XX, Nos. 253 and 254. 4to. Bombay, 1891.

GOVERNMENT OF INDIA, HOME DEPARTMENT.

Report on the Administration of the Madras Presidency, during the year 1890-91. Fcp. Madras, 1891.

GOVERNMENT OF MADRAS.

Report on the Administration of the Punjab and its Dependencies for 1890-91. Fcp. Lahore, 1891.

GOVERNMENT OF THE PUNJAB.

The Year-Book of Australia, 1886, 1889 and 1890. 8vo. London.

MESSRS. KEGAN PAUL, TRENCH, TRÜBNER & Co., LD. LONDON.

Monthly Weather Review, May 1891. 4to. Calcutta, 1891.

Original Meteorological Observations, May 1891. Fcp. Calcutta, 1891.

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Bulletin of the Microscopical Society of Calcutta, Vol. I, No. 10. 8vo. Calcutta, 1891.

Fourth Report of the Microscopical Society of Calcutta for the year 1891. 8vo. Calcutta, 1892.

MICROSCOPICAL SOCIETY OF CALCUTTA.

Grammar of the Bengali Language. By John Beames. 8vo. Oxford, 1891.

OXFORD UNIVERSITY.

Annual Report of the Director of the Royal Alfred Observatory for the years 1888 and 1889. Fcp. Mauritius, 1889 and 1890.

Mauritius Meteorological Results for 1889. Fcp. Mauritius.

ROYAL ALFRED OBSERVATORY, MAURITIUS.

Synopsis of the Results of the Operations of the Great Trigonometrical Survey of India, Vol. XXIII. The South KonKan Coast series of the Southern Trigon. 4to. Dehra Dun, 1891.

Vol. XXIV. The Mangalore Meridional series of Southern Trigon. 4to. Dehra Dun, 1891.

TRIGONOMETRICAL BRANCH, SURVEY OF INDIA, DEHRA DUN.

### PERIODICALS PURCHASED.

- Allahabad. North Indian Notes and Queries—Vol. I, No. 10.
- Berlin. Deutsche Literaturzeitung,—Jahrgang XII, Nr. 45–47.
- Braunschweig. Jahresbericht über die Fortschritte der Chemie und verwandter Theile anderer Wissenschaften,—Heft V, 1888.
- Calcutta. Indian Medical Gazette,—Vol. XXVII, No. 1.
- Cassel. Botanisches Centralblatt,—Band XLVIII, Heft 4 und 5.
- Geneva. Archives des Sciences Physiques et Naturelles,—Tome XXVI, No. 12.
- Göttingen. Der Königl. Gesellschaft der Wissenschaften,—Göttingische Gelehrte Anzeigen, Nrn. 20 und 21.
- Leipzig. Annalen der Physik und Chemie,—Band XLIV, Heft 4.
- . ———. Beiblätter, Band XV, Stück 11.
- London. The Annals and Magazine of Natural History,—Vol. VIII (6<sup>th</sup> Series), No. 48.
- . The Chemical News,—Vols. LXIV, Nos. 1673 and 1674; LXV, 1675–77.
- . The Entomologist's Monthly Magazine,—Vol. II (2<sup>nd</sup> Series) No. 24.
- . The London, Edinburgh and Dublin Philosophical Magazine,—Vol. XXXII (5<sup>th</sup> Series), Nos. 198 and 199.
- . The Messenger of Mathematics,—Vol. XXI, No. 7.
- . The Quarterly Journal of Microscopical Science,—Vol. XXXII, Part 3.
- New Haven. The American Journal of Science,—Vol. XLII (3<sup>rd</sup> Series), No. 251.
- Paris. L'Académie des Sciences,—Comptes Rendus des Séances, Tome CXIII, Nos. 18–20.
- . Revue Scientifique,—Tome XLVIII, Nos. 25 et 26; XLIX, 1–3.
- . Revue Critique d'Histoire et de Littérature,—Tome XXXII, Nos. 45–47.

### BOOKS PURCHASED.

- CHALMERS, JAMES. *Pioneering in New Guinea.* 8vo. London, 1887.
- LUMHOLTZ, CARL. *Among Cannibals; an account of four years' travels in Australia and of Camp Life with the aborigines of Queensland.* 8vo. London, 1889.
- WOODFORD, CHARLES MORRIS. *A Naturalist among the Head-Hunters; being an account of three visits to the Salomon Islands in the years 1886, 1887 and 1888.* 8vo. London, 1890.

LIST OF MEMBERS  
OF THE  
ASIATIC SOCIETY OF BENGAL.  
ON THE 31ST DECEMBER 1891.



LIST OF OFFICE-BEARERS AND MEMBERS OF  
COUNCIL FOR THE YEAR 1891.

---

*President.*

Hon. Sir A. W. Croft, K. C. I. E., M. A.

*Vice-Presidents.*

Rájá Rájendralála Mitra, C. I. E., LL. D.

J. Wood-Mason, Esq.

A. Pedler, Esq., F. C. S.

*Secretaries and Treasurer.*

Dr. A. F. R. Hoernle.

W. L. Slater, Esq., M. A.

C. Little, Esq., M. A.

W. King, Esq., B. A., D. Sc.

*Other Members of Council.*

Dr. J. Scully.

Pandit Haraprasád Shástri, M. A.

Dr. D. D. Cunningham.

Prince Jahán Qadr Muhammad Wáhid Alí Bahádur.

Bábu Gaurdás Bysack.

Dr. A. Crombie.

Bábu Pratápachandra Ghosha, B. A.

C. H. Tawney, Esq., M. A.

L. de Nicéville, Esq., F. E. S.

Colonel H. S. Jarrett.

Dr. Mahendralál Sarkár, C. I. E.

E. C. Cotes, Esq.

## LIST OF ORDINARY MEMBERS.

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R. = Resident. N. R. = Non-Resident. A. = Absent. N. S. = Non-Subscribing  
L. M. = Life Member. F. M. = Foreign Member.

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N. B.—Members who have changed their residence since the list was drawn up are requested to give intimation of such a change to the *Secretaries*, in order that the necessary alteration may be made in the subsequent edition. Errors or omissions in the following list should also be communicated to the *Secretaries*.

Members who are about to leave India and do not intend to return are particularly requested to notify to the *Secretaries* whether it is their desire to continue Members of the Society; otherwise, in accordance with Rule 40 of the Bye-Laws, their names will be removed from the list at the expiration of three years from the time of their leaving India.

Date of Election.		
1860 Dec. 5.	R.	Abdul-Latif, Nawáb Bahádur, C. I. E. <i>Calcutta</i> .
1888 Feb. 1.	N.R.	Adamson, Major Charles Henry Ellison, M. S. C., Deputy Commissioner. <i>Sagging</i> .
1889 Nov. 6.	R.	Adie, J. R., M. B., Surgeon, Eden Hospital. <i>Calcutta</i> .
1860 July 4.	N.R.	Ahmad Khán, Bahádur, Hon. Maulvi Sir Sayid, K. C. S. I. <i>Aligarh</i> .
1888 April 4.	R.	Akmud, Shams-ul-ulana Maulvi, Khán Bahádur, Arabic Professor, Presidency College. <i>Calcutta</i> .
1872 April 3.	N.R.	Ashán-ullah, Khán Bahádur, Nawáb. <i>Dacca</i> .
1888 Feb. 1.	N.R.	Alcock, Alfred William, M. B., Surgeon Naturalist, Marine Survey Department.
1884 Mar. 5.	L.M.	Ali, Sir Ali Qadr Syud Hassan, Nawáb Bahádur, K. C. I. E. <i>Murshedabad</i> .
1874 June 3.	R.	Amír Ali, Hon. C. I. E., M. A. Barrister-at-Law, Judge, High Court. <i>Calcutta</i> .
1865 Jan. 11.	F.M.	Anderson, John, M. D., F. R. S., F. L. S. <i>Europe</i> .
1884 Sept. 3.	R.	Anderson, J. A. <i>Calcutta</i> .
1890 July 2.	N.R.	Arnold, Thomas Walker, B. A., M. R. A. S., Pro- fessor, Muhammadan Anglo-Oriental College. <i>Aligar</i> .
1869 Feb. 3.	N.R.	Attar Singh, Bahádur, Mahámahopádhyaýa Sindár, Sir, K. C. I. E., M. U. F., Chief of Bhadour. <i>Ludiana</i> .
1889 Aug. 29.	N.R.	Aziz-ud-din Ahmad, Deputy Collector and Magis- trate. <i>Garkwal</i> .
1870 Feb. 2.	L.M.	Baden-Powell, Baden Henry, C. I. E., C. S. <i>Europe</i> .

Date of Election.		
1891 Mar. 4.	N.R.	Baillie, D. C., c. s. <i>Naini Tal.</i>
1891 April 1.	N.R.	Baker, E. C. S. <i>North Cachar.</i>
1865 Nov. 7.	N.S.	Ball, Valentine, M. A., F. R. S., F. G. S. <i>Europe.</i>
1889 May 1.	R.	Banerji, Hon. Dr. Gurudás, M. A., D. L., Judge, High Court. <i>Calcutta.</i>
1869 Dec. 1.	L.M.	Barker, R. A., M. D., Civil Surgeon. <i>Serainpore.</i>
1877 Jan. 17.	N.R.	Burman, Kishor Kumár Rádhá Dev, Juvraj of Hill Tipperah. <i>Tipperah.</i>
1885 Nov. 4.	R.	Barman, Dámudar Dás. <i>Calcutta.</i>
1887 Aug. 3.	R.	Basu, Haricharan. <i>Calcutta.</i>
1864 Sept. 7.	A.	Beames, John, c. s. <i>Europe.</i>
1878 Sept. 25.	N.R.	Beighton, T. D., c. s., Judge. <i>Dacca.</i>
1876 Nov. 15.	N.R.	Beveridge, Henry, c. s. <i>Berhampur.</i>
1878 Oct. 4.	R.	Bhakta, Krishna Gopál. <i>Calcutta.</i>
1879 Mar. 5.	N.R.	Biddulph, Col. J., B. S. C. <i>Ajmere.</i>
1884 Jan. 2.	A.	Bidie, Surgeon-General Gt., C. I. E., F. L. S., M. B. <i>Europe.</i>
1884 Feb. 6.	N.R.	Bigg-Wither, Major A. C., B. A., A. I. C. E. <i>Quetta.</i>
1885 Mar. 4.	N.R.	Bilgrámi, Syud Ali, B. A., A. R. S. M., F. G. S. <i>Hyderabad.</i>
1886 Aug. 4.	N.R.	Bingham, Major Charles Thomas, B. S. C., Conservator of Forests. <i>Moulmein.</i>
1857 Mar. 4.	L.M.	Blanford, H. F., A. R. S. M., F. R. S., F. G. S. <i>Europe.</i>
1859 Aug. 3.	L.M.	Blanford, W. T., A. R. S. M., F. R. S., F. G. S., F. R. G. S., F. Z. S. <i>Europe.</i>
1885 Mar. 4.	R.	Bolton, C. W., c. s. <i>Calcutta.</i>
1890 July 2.	R.	Bonnerjee, Womes Chunder, Barrister, Middle Temple. <i>Calcutta.</i>
1880 Nov. 3.	N.R.	Bose, Pramatha Náth, B. Sc., F. G. S., Geological Survey of India.
1890 Dec. 3.	N.R.	Bose, Rai Nali Naksha, Bahádur, Chairman, Burdwan Municipality. <i>Burdwan.</i>
1876 Nov. 15.	N.R.	Bowie, Colonel M. M., Inspector General of Police, C. P. <i>Nagpur.</i>
1876 May 4.	N.R.	Bradshaw, Surgeon-Colonel A. F., Honorary Surgeon to the Viceroy M. D., C. B. <i>Rawal Pindi.</i>
1860 Mar. 7.	L.M.	Brandis, Sir Dietrich, K. C. I. E., C. I. E., Ph. D., F. L. S., F. R. S. <i>Europe.</i>
1891 Nov. 4.	N.R.	Brown, Dr. E. H. <i>Puri.</i>
1887 May 4.	R.	Burál, Nobinchand, Solicitor. <i>Calcutta.</i>
1862 Feb. 5.	L.M.	Bysack, Gaurdás. <i>Calcutta.</i>
1879 April 2.	R.	Calcutta, The Rt. Rev. the Lord Bishop of. <i>Calcutta.</i>
1881 Feb. 2.	N.R.	Carter, Philip John, Deputy Conservator of Forests. <i>Tharrawaddy.</i>
1890 June 4.	N.R.	Chakravarti, Man Mohan, M. A., B. L., Deputy Magistrate. <i>Puri.</i>

Date of Election.		
1889 April 3.	R.	Chunder, The Hon'ble Gonesh Chunder, Solicitor. <i>Calcutta.</i>
1881 Mar. 2.	N.R.	Channing, Francis Chorley, c. s. <i>Hoshiarpur.</i>
1891 Mar. 4.	R.	Chatterjee, Dr. Aghore Chunder. <i>Calcutta.</i>
1861 Mar. 1.	N.R.	Chaudhuri, Harachandra, Zemindar. <i>Sherpur, Mymensingh.</i>
1880 Nov. 3.	N.R.	Chaudhuri, Rái Khiród Chandra. Deputy Inspector of Schools, Southal Pergunnahs. <i>Dumka.</i>
1886 April 7.	N.R.	Chaudhuri, Rádháballabha. <i>Sherpur, Mymensingh.</i>
1885 Feb. 4.	N.R.	Chaudhuri, Rájá Suryakánta, Bahádur. <i>Mymensingh.</i>
1890 Feb. 5.	A.	Chuckerbutty, A. Goodeve, B. C. S. <i>Europe.</i>
1889 Sept. 26.	N.R.	Chuckerbutty, Rájá Ramranjan, Bahádur. <i>Hilampur, Beerbhoom.</i>
1885 April 1.	A.	Clark, H. Martyn, M. B. <i>Europe.</i>
1877 Aug. 30.	A.	Clarke, Lieut.-Col. Henry Wilberforce, R. E. <i>Europe.</i>
1880 Aug. 26.	F.M.	Clerk, Colonel Malcolm G. <i>Europe.</i>
1881 May 4.	N.R.	Cockburn, John, Asst. Sub-Deputy Opium Agent. <i>Lucknow.</i>
1888 Nov. 1.	N.R.	Collett, Brigadier General Henry, C. B., F. L. S. <i>Shillong, Assam.</i>
1889 Nov. 6.	A.	Colville, William Brown. <i>Europe.</i>
1886 Aug. 26.	F.M.	Condenhove, Count H., Attaché Austro-Hungarian Embassy. <i>Tokio.</i>
1890 Dec. 3.	N.R.	Connan, William, c. E., Public Works Department. <i>Cuttack.</i>
1874 Nov. 4.	F.M.	Constable, Archibald, M. I. C. E. <i>Europe.</i>
1884 Aug. 6.	R.	Cotes, Everard Charles, Indian Museum. <i>Calcutta.</i>
1876 Mar. 1.	R.	Crawford, James, B. A., c. s., Barrister-at-Law, Offg. District and Sessions Judge. <i>Hughli.</i>
1887 Aug. 25.	R.	Criper, William Risdon, F. C. S., F. I. C., A. R. S. M. <i>Kossipore.</i>
1877 June 6.	R.	Croft, The Hon. Sir A. W., K. C. I. E., M. A., Director of Public Instruction, Bengal. <i>Calcutta.</i>
1874 Mar. 4.	R.	Crombie, Surgeon Major Alexander, M. D., Presidency General Hospital. <i>Calcutta.</i>
1888 Dec. 5.	N.R.	Crooke, William, B. A., c. s., Magistrate and Collector. <i>Mirzapur.</i>
1873 Aug. 6.	R.	Cunningham, Surgeon-Major David Douglas. Honorary Surgeon to the Viceroy. <i>Calcutta.</i>
1873 Dec. 3.	N.R.	Dames, Mansel Longworth, c. s., Asst. Commissioner. <i>Dera Ghazi Khan.</i>
1877 June 6.	N.R.	Darbhanga, Sir Luchmessur Sing, Bahádur, K. C. I. E., Mahárájá of. <i>Darbhanga.</i>
1865 June 7.	N.R.	Dás, Rájá Jaykrishna, Bahádur, c. s. i. <i>Moradabad.</i>
1879 April 7.	N.R.	Dás, Rám Saran, M. A., Secy., Oudh Commercial Bank, Limited. <i>Fyzabad, Oudh.</i>

Date of Election.		
1885 May 6.	N.R.	Dé, Rájá Baikuntanáth, Bahádur. <i>Balasore.</i>
1889 May 1.	N.R.	Delawar Hosaen Ahmed, Meerza. <i>Bhagulpur.</i>
1862 May 7.	N.R.	Dhanapati Singh Dughar, Rai Bahádur. <i>Azimgang.</i>
1877 July 4.	R.	Diler Jang, Nawáb Syad Ashgar Ali, Khán Bahádur, c. s. i. <i>Calcutta.</i>
1890 July 2.	R.	Donaldson, P. <i>Calcutta.</i>
1886 June 2.	R.	Doyle, Patrick, c. E., F. G. S., M. R. I. A. <i>Calcutta.</i>
1887 Nov. 2.	N.R.	Driver, Walter Henry Parker. <i>Ranchi, Lohardugga.</i>
1889 Jan. 2.	N.R.	Dudgeon, Gerald Cecil, Lebong Tea Company. <i>Darjeeling.</i>
1879 Feb. 5.	N.R.	Duthie, J. F., Director, Government Botanical Survey, Northern India. <i>Saharanpur.</i>
1877 Aug. 30.	N.R.	Dutt, Kedarnáth, Depy. Collector. <i>Pooree.</i>
1890 Sept. 25.	N.R.	Dutt, Romesh Chunder, B. C. S., Barrister-at-Law, Middle Temple, Magistrate and Collector. <i>Midnapur.</i>
1870 Mar. 9.	L.M.	Edinburgh, H. R. H. The Duke of. <i>Europe.</i>
1871 Dec. 2.	N.R.	Eliot, J., M. A., Meteorological Reporter to the Govt. of India. <i>Simla.</i>
1886 Jan. 6.	R.	Elson, Samuel R., Bengal Pilot Service. <i>Calcutta.</i>
1891 Nov. 4.	N.R.	Ernst, Diego. <i>Delhi.</i>
1879 July 2.	R.	Finucane, M., c. s., Director of Agriculture, Bengal. <i>Calcutta.</i>
1869 Sept. 1.	A.	Fisher, John Hadden, c. s. <i>Europe.</i>
1886 April 7.	N.R.	Fleet, John Faithfull, C. I. E., C. S. <i>Bijapur, Bombay.</i>
1876 July 5.	N.R.	Foulkes, The Rev. Thos., F. L. S., M. B. A. S., F. R. G. S. <i>Salem, Madras Presidency.</i>
1880 April 7.	N.R.	Gajapati, Ananda Rám, K. C. I. E., Rájá of Vizianagram. <i>Vizianagram.</i>
1873 Dec. 3.	N.R.	Gamble, J. S., M. A., Conservator of Forests. <i>Dehra Dún.</i>
1859 Aug. 3.	L.M.	Gastrell, General James Eardley. <i>Europe.</i>
1867 Dec. 4.	A.	Gay, E., M. A., F. R. A. S. <i>Europe.</i>
1889 Jan. 2.	R.	Ghose, Jogendrachandra, M. A., B. L. <i>Calcutta.</i>
1883 Aug. 30.	R.	Ghosh, Manmohan. <i>Calcutta.</i>
1889 Mar. 6.	R.	Ghosha, Bhupendra Sri. <i>Calcutta.</i>
1869 Feb. 3.	R.	Ghosha, Pratápchandra, B. A. <i>Calcutta.</i>
1884 Dec. 3.	N.R.	Giles, George M. J., M. B., F. R. G. S., Civil Medical Officer, Lawrence Military Asylum. <i>Sanawar.</i>
1886 Sept. 30.	N.R.	Ginlette, Surgeon George Hart Desmond, Bengal Medical Service, M. D., M. CH., M. R. C. S., L. S. A., Goona Political Agency. <i>Central India.</i>
1861 Feb. 5.	N.S.	Goodwin-Austen, Lieut.-Colonel H. H., F. R. S., F. Z. S., F. R. G. S. <i>Europe.</i>
1890 Aug. 6.	R.	Goethals, The Most Rev. Dr. Paul, S. J., Archbishop of Calcutta.

Date of Election.		
1882 May 3.	R.	Golám Sarwar, Maulavi. <i>Calcutta.</i>
1881 Mar. 2.	R.	Gosáin, Hem Chunder. <i>Calcutta.</i>
1876 Nov. 15.	N.R.	Grierson, George Abraham, c. s. <i>Gya</i>
1885 Dec. 2.	N.R.	Griesbach, C. L., c. i. e., F. G. S., Deputy Superintendent, Geological Survey of India.
1886 Mar. 3.	N.R.	Gupta, Asutosh, c. s., Assistant Magistrate and Collector. <i>Krishnaghur.</i>
1888 July 4.	R.	Gupta, Rajanikánta. <i>Calcutta.</i>
1889 June 5.	N.R.	Hamilton, Rev. Walter A., Chaplain. <i>Agra.</i>
1883 Jan. 3.	A.	Harding, Francis Henry, B. A., c. s. <i>Europe.</i>
1890 June 4.	R.	Heilgers, Robert Philip, Consul for H. I. M. the Emperor of Austria and Hungary, Knight of the Imperial Order of the Iron Crown, Commandeur Ordre Impériale de Medjidié, F. R. G. S., F. R. S. S. <i>Calcutta.</i>
1875 Mar. 3.	A.	Hendley, Surgeon Major Thomas Holbein, c. i. e. <i>Europe.</i>
1890 April 2.	R.	Hickson, F. G. <i>Calcutta.</i>
1872 Dec. 5.	R.	Hoernle, A. F. R., PH. D., Principal of the Calcutta Madrasa.
1878 Mar. 6.	N.R.	Hoey, W., c. s. <i>Banda.</i>
1886 June 2.	R.	Hogg, Alexander. <i>Calcutta.</i>
1891 July 1.	R.	Holland, Thomas H. <i>Calcutta.</i>
1884 Mar. 5.	N.R.	Hooper, John, c. s., Secretary, Board of Revenue. <i>Allahabad. N.-W. P.</i>
1873 Jan. 2.	L.M.	Houstoun, G. L., F. G. S. <i>Europe.</i>
1863 Jan. 15.	N.R.	Howell, Mortimer Sloper, c. s., c. i. e. <i>Shahjahanpur.</i>
1878 Sept. 25.	N.R.	Hughes, G., c. s., Deputy Commissioner. <i>Lulhiama.</i>
1867 Aug. 7.	N.R.	Hughes, T. W. H., A. B. S. M., F. G. S., Superintendent, Geological Survey of India.
1884 May. 2.	N.R.	Hussein, Syud, B. A., Secy. to Nizam of Hyderabad's Council. <i>Hyderabad.</i>
1890 Dec. 3.	R.	Hyde, Rev. Henry Barry, M. A., Bengal Ecclesiastical Establishment. <i>Calcutta.</i>
1866 Mar. 7.	F.M.	Irvine, William, c. s. <i>Europe.</i>
1884 May 2.	N.R.	Iskander Ali Mirza, Prince. <i>Murshedabad.</i>
1880 Dec. 1.	A.	Jackson, William Grierson, c. s. <i>Europe.</i>
1869 Aug. 4.	R.	Jahán Qadr Muhammad Wáhid Alí, Bahádur, Prince. <i>Garden Reach. Calcutta.</i>
1879 Mar. 5.	R.	Jarrett, Lt.-Col. H. S., B. S. C., Secy. to the Board of Examiners. <i>Calcutta.</i>
1881 Feb. 2.	N.R.	Jenkins, Major Thomas Morris, M. S. C. Deputy Commissioner. <i>Tavoy.</i>
1889 Mar. 6.	R.	Jobbins, William Henry, Principal, Government School of Art. <i>Calcutta.</i>
1873 Dec. 3.	N.R.	Johore, H. H. the Mahárájá of, K. C. S. I. <i>New Johore, Singapore.</i>

Date of Election.		
1882 Mar. 1.	N.R.	Kennedy, Pringle, M. A. <i>Mozufferpur.</i>
1874 Dec. 2.	N.R.	Khudá Baksh, Khán Bahádúr, Maulavi. <i>Bánkipur.</i>
1884 Nov. 5.	N.R.	Kitts, Eustace John, C. S. <i>Moradabad.</i>
1867 Dec. 4.	R.	King, Brigade Surgeon G., C. I. E., M. B., F. L. S., Supdt., Royal Botanic Garden. <i>Sibpur.</i>
1881 Mar. 2.	N.R.	King, Lucas White, B. A., LL. B., C. S., Deputy Com- missioner. <i>Dehra Ismail Khan.</i>
1862 Jan. 15.	R.	King, W., B. A., D. SC., Director, Geological Survey of India. <i>Calcutta.</i>
1891 Feb. 4.	N.R.	Kupper, Hon. Lala Bunbehari. <i>Burdwan.</i>
1890 April 2.	A.	Lake Philip, B. A., (Cantab.), Geological Survey of India. <i>Europe.</i>
1889 July 3.	N.R.	Lal, Pandit Brij Bukhan. Public Works Depart- ment. <i>Kurnal, Punjab.</i>
1887 May 4.	L.M.	Lanman, Charles R., Corresponding Secretary of the American Oriental Society, Professor of San- skrit in Harvard College. <i>Cambridge, Mass. U. S. America.</i>
1891 June 3.	N.R.	Lathom-Browne, Rev. D. G., Chaplain. <i>Port Blair.</i>
1877 Sep. 27.	N.R.	La Touche, James John Digges, B. A., C. S., Collector and Magistrate. <i>Aligarh.</i>
1889 Mar. 6.	N.R.	La Touche, Thomas Henry Digges, M. A. Deputy Superintendent, Geological Survey of India.
1889 Nov. 6.	R.	Lee, W. A. <i>Calcutta.</i>
1881 Mar. 2.	N.R.	Lee, J. Bridges, M. A., F. G. S., F. C. S., F. Z. S., Barrister-at-Law. <i>Lahore.</i>
1880 July 7.	A.	Lewis, Rev. Arthur, B. A. <i>Europe.</i>
1889 Feb. 6.	R.	Little, C., M. A., Bengal Education Department. <i>Calcutta.</i>
1886 Sep. 30.	R.	Luson, Hewling, C. S., Under Secretary, Govern- ment of Bengal. <i>Calcutta.</i>
1869 July 7.	R.	Lyall, Charles James, B. A., C. S. Secretary, Govern- ment of India, Home Department. <i>Calcutta.</i>
1870 April 7.	L.M.	Lyman, B. Smith. <i>Philadelphia, Pa., U. S. America.</i>
1884 Dec. 3.	N.R.	McCabe, R. B., C. S., Deputy Commissioner. <i>Tezpur, Assam.</i>
1868 Dec. 2.	A.	Macauliffe, Michael, B. A., C. S. <i>Europe.</i>
1848 April 5.	L.M.	MacLagan, General Robert, R. E., LL. D., F. R. S. E., F. R. G. S. <i>Europe.</i>
1873 Dec. 3.	R.	MacLeod, Brigade Surgeon Kenneth, M. D. <i>Cal- cutta.</i>
1880 May 5.	A.	MacLeod, Roderick Henry, C. S. <i>Europe.</i>
1891 Feb. 4.	N.R.	Macpherson, Duncan J., C. S. <i>Noakholly.</i>
1881 July 6.	R.	Mahomed Firukh Sháh, Prince. <i>Calcutta.</i>
1886 Jan. 6.	N.R.	Mahomed Latif Khán, Sayyid, Khán Bahádúr. <i>Gurdaspur.</i>

Date of Election.		
1882 Aug. 2.	R.	Mahomed Yusoof, Hon. Maulavi. <i>Calcutta.</i>
1888 July 4.	N.R.	Mahomed Zainool Abideen Khán Bahádur Feroze Jung, Nawab Syud (Nizamut Family). <i>Murshedabad.</i>
1867 April 3.	R.	Mainwaring, Lieutenant-General George Byres, s. c. <i>Serampur.</i>
1889 Jan. 2.	R.	Maliáh, Kumár Rameswar. <i>Howrah.</i>
1891 Nov. 4.	R.	Mallik, H. C. <i>Calcutta.</i>
1869 Sept. 1.	R.	Mallik, Yadulál. <i>Calcutta.</i>
1889 Mar. 6.	A.	Mann, John, M. A. <i>Europe.</i>
1869 July 7.	N.R.	Markham, Alexander Macanlay, C. S., F. R. G. S., Divisional Judge. <i>Meerut.</i>
1886 Aug. 26.	N.R.	Meade, Capt. Malcolm John, s. c., Political Agent. <i>Bhopawar.</i>
1886 Mar. 3.	L.M.	Mehtá, Rustomjee Dhunjeebhoy. <i>Calcutta.</i>
1884 Nov. 5.	N.R.	Middlemiss, C. S., A. B., Assistant Superintendent, Geological Survey of India.
1871 Sept. 6.	A.	Miles, Colonel S. B., B.O. s. c. <i>Europe.</i>
1884 Sept. 3.	R.	Miles, William Harry. <i>Calcutta.</i>
1870 July 6.	R.	Miller, A. B., B.A., Barrister-at-Law, Official Trustee. <i>Calcutta.</i>
1874 May 6.	N.R.	Minchin, F. J. V. <i>Aska, Ganjam.</i>
1890 Dec. 3.	N.R.	Mitra, Varana Charana. Joint Magistrate. <i>Begusarai, Monghyr.</i>
1876 Dec. 6.	N.R.	Mockler, Col. E., Political Agent. <i>Muscat.</i>
1886 May 5.	A.	Molesworth, Capt. E. H. Commandant, Police Levy. <i>Europe.</i>
1881 May 4.	A.	Molloy, Lieut.-Col. Edward, 5th Goorkhas. <i>Europe.</i>
1864 Nov. 2.	N.R.	Muir, J. W., M. A., C. S. <i>Etawah.</i>
1879 May 7.	R.	Mukerjea, Bhudeva, C. I. E. <i>Chinsurah.</i>
1867 Mar. 6.	R.	Mukerjea, Rájá, The Hon. Pearimohan, C. S. I., M. A. <i>Uttarpara.</i>
1885 July 1.	R.	Mukerjea, Nilmani, Professor, Sanskrit College. <i>Calcutta.</i>
1890 July 2.	R.	Mukharji, T. N. <i>Calcutta.</i>
1886 May 5.	R.	Mukhopádhyaýa, Asutosh, M. A., F. R. A. S., F. R. S. E. <i>Calcutta.</i>
1887 May 4.	R.	Munro, Thomas R., Port Commissioners Department. <i>Calcutta.</i>
1885 June 3.	N.E.	Naemwoollah, Maulavi, Depy. Magte. <i>Moradabad.</i>
1887 June 1.	N.R.	Narain, Ráo Govind Ráo. <i>Allahabad.</i>
1876 May 4.	R.	Nash, A. M., M. A., Inspector of European Schools, Bengal. <i>Calcutta.</i>
1881 Nov. 2.	R.	Nicéville, L. de., F. E. S. <i>Calcutta.</i>
1889 Aug. 29.	L.M.	Nimmo, John Duncan. <i>Calcutta.</i>
1887 April 6.	N.R.	Noetling, Fritz, Ph. D. Palaeontologist to the Geological Survey of India.



Date of Election.		
1869 July 7.	N.R.	Nursing Ráo, A. V., Ráo Bahádur, F. R. A. S., <i>Visagapatam.</i>
1885 Feb. 4.	R.	Nyáyaratna, Pandit Mahámahopádhya Mahes-chandra, C. I. E. <i>Calcutta.</i>
1879 Aug. 28.	F.M.	Oldham, Brigade-Surgeon C. F., F. R. G. S. <i>Europe.</i>
1883 Dec. 1.	R.	Oldham, R. D., A. R. S. M., F. G. S., Deputy Super-intendent, Geological Survey of India. <i>Calcutta.</i>
1883 Aug. 30.	F.M.	Oliver, Edw. Emmerson, M. I. C. E. <i>Europe.</i>
1885 Feb. 4.	N.R.	Oliver, James William, Forest Dept. <i>Burmah.</i>
1887 July 6.	R.	Oung, Moung Hla, Financial Department, Govern-ment of India. <i>Calcutta.</i>
1880 Aug. 4.	L.M.	Pandia, Pandit Mohanlál Vishnulál, F. T. S., Mem-ber and Secy., Royal Council of Meywar. <i>Udai-pur.</i>
1888 Feb. 1.	L.M.	Pandit, Hon. Ajodhianath. <i>Allahabad.</i>
1880 Jan. 7.	N.R.	Pargiter, Frederick, E., B. A., C. S. <i>Rajshahye.</i>
1862 May 7.	L.M.	Partridge, Surgeon-Major Samuel Bowen, M. D., <i>Europe.</i>
1871 Dec. 6.	N.R.	Peal, S. E. <i>Sibsagar, Assam.</i>
1873 Aug. 6.	R.	Pedler, Alexander, F. C. S., Professor of Chemistry, Presidency College. <i>Calcutta.</i>
1888 June 6.	L.M.	Pennell, Aubray Percival, B. A., C. S. <i>Rangoon.</i>
1865 Sept. 6.	N.R.	Peppé, T. F., Tiril Tea Estate. <i>Ranchi, Lohardugga.</i>
1881 Aug. 25.	R.	Percival, Hugh Melville, M. A., Professor, Presi-dency College. <i>Calcutta.</i>
1877 Aug. 1.	N.R.	Peters, Surgeon Major C. T., M. B. <i>Bijapur, Bom-bay.</i>
1889 Nov. 6.	N.R.	Phillott, Capt. D. C., Adjutant 3rd Panjab Cavalry. <i>Dera Ismail Khan.</i>
1890 Mar. 5.	N.R.	Pilcher, Deputy Surgeon General Jesse Griggs. <i>Nagpur.</i>
1889 Mar. 6.	R.	Prain, David, M. A., M. B., L. R. C. S., I. R. S. E., I. L. S., Royal Botanic Garden. <i>Sibpur.</i>
1889 Mar. 6.	N.R.	Prasad, Hanuman, Raes and Zemindar. <i>Chunar.</i>
1889 Nov. 6.	N.R.	Prasada, Pandit Jwála, M. A., Assistant Commis-sioner. <i>Rai Bareli.</i>
1881 Feb. 2.	N.R.	Prideaux, Colonel William Francis, B. S. C. <i>Sialkot, Punjab.</i>
1880 April 7.	N.R.	Rai, Bipina Chandra, B. L. <i>Rannaghat, Nuddea.</i>
1887 May 4.	A.	Ráy Prasannakumár, D. Sc., (Lond. and Edin.) Professor, Presidency College. <i>Europe.</i>
1889 June 5.	R.	Raye, Brigade Surgeon Daniel O'Connell, M. D. <i>Calcutta.</i>
1880 Aug. 4.	N.R.	Reynolds, Herbert William Ward, C. S. <i>Banda.</i>

DATE OF ELECTION.		
1884 Mar. 5.	R.	Risley, H. H., B. A., C. S. <i>Calcutta.</i>
1860 Jan. 3.	N.R.	Rivett-Carnac, John Henry, C. I. E., F. S. A., C. S., Opium Agent. <i>Ghazipur.</i>
1889 June 5.	R.	Rowe, F. J., M. A., Bengal Education Department. <i>Calcutta.</i>
1888 July 4.	N.R.	Roy, Kirán Chándra, Zemindar. <i>Narail, Jessore.</i>
1888 June 6.	R.	Roy, Kumár Denendro Nārayán. <i>Calcutta.</i>
1890 Mar. 5.	N.R.	Roy, Mahārājā Girjanath. <i>Dinajpur.</i>
1888 June 6.	R.	Roy, Peary Mohun. <i>Calcutta.</i>
1888 Sep. 27.	N.R.	Roy, Upendra Chándra, Zemindar. <i>Narail, Jessore.</i>
1885 Mar. 4.	R.	Rustomjee, H. M. <i>Calcutta.</i>
1889 June 5.	N.R.	Sadler, Major J. Hayes, B. S. C. <i>Kotah.</i>
1887 June 1.	N.R.	Sandberg, Rev. Graham, B. A., Barrister-at-Law, Inner Temple. Chaplain. <i>Roorkee.</i>
1872 Dec. 4.	R.	Sarasvati, Pandit, Pránnáth, M. A., B. L. <i>Bho- wanipur.</i>
1867 April 3.	R.	Sarkár, Dr. Mahendralál, C. I. E. <i>Calcutta.</i>
1885 Mar. 4.	R.	Sarvādhikári, Rájkumár, Rai Bahádúr. <i>Calcutta.</i>
1885 Feb. 4.	R.	Sástri, Pandit Haraprasád, M. A. <i>Calcutta.</i>
1888 Feb. 1.	A.	Sclater, William Lutley, M. A. <i>Europe.</i>
1884 April 2.	N.R.	Scotland, John Parry, C. E., Ex. Engineer. <i>Midna- pur.</i>
1874 July 1.	R.	Scully, Dr. John. <i>Calcutta.</i>
1888 Sept. 27.	R.	Sen-Gupta, Kali Prasanna. <i>Calcutta.</i>
1886 Mar. 3.	N.R.	Sen, Hirálal, Excise Department. <i>Gya.</i>
1885 April 1.	N.R.	Sen, Yadunáth. <i>Balia via Cuttack.</i>
1885 April 1.	R.	Sep, Narendranáth. <i>Calcutta.</i>
1879 Jan. 8.	N.R.	Sewell, R., M. C. S. <i>Bellary.</i>
1888 April 4.	N.R.	Shástri, Haridas Bhattáchárya, Sankhya Shastri, M. A. Director of Public Instruction, Jaypur State. <i>Jaypur.</i>
1891 June 3.	N.R.	Shillingford, F. A. <i>Purneah.</i>
1882 May 3.	N.R.	Shyamadás, Mahámahopadhyáya Kaviráj, Private Secy. to H. H. the Mahārājā of Udaipur. <i>Udaipur.</i>
1878 April 3.	A.	Simson, A. <i>Europe.</i>
1887 April 6.	R.	Simpson, Dr. W. J., Health Officer to the Municipal Corporation. <i>Calcutta.</i>
1889 Nov. 6.	N.R.	Simpson, Edmund James, L. R. C. P. E., F. L. P. S. G., L. M. G. E., Civil Surgeon. <i>Rai Bareli.</i>
1884 Sept. 3.	R.	Singh, Kumár Indrachandra, of Paikparah. <i>Cal- cutta.</i>
1882 June 7.	N.R.	Singh, Mahārājā Sir Harendra Kishore, K. C. I. E. <i>Bettiah.</i>
1890 Sept. 25.	R.	Singh, Kumar Sarat Chándra. <i>Calcutta.</i>
1878 Oct. 4.	N.R.	Singh, Rájá Lachman. <i>Agra.</i>
1882 Aug. 2.	N.R.	Singh, Rájá Rám Naráin. <i>Khyrah, Monghyr.</i>
1880 June 2.	N.R.	Singh, Thákur Garuradhawaya Prasád, Rájá of Beswan, Behwan Fort. <i>Aligarh.</i>

Date of Election.		
1889 Aug. 29.	N.R.	Singh, H. H. Prabhunarain, Bahádur, Mahárájá of Benares.
1889 Nov. 6.	N.R.	Singh, Hon. Rájá Rameshwara, Bahádur. <i>Darbhanga.</i>
1859 Aug. 3.	R.	Sinha, Baláichánd. <i>Calcutta.</i>
1872 Aug. 5.	N.R.	Skrefsrud, Rev. L. O., Indian Home Mission to the Santháls. <i>Rampur Hát.</i>
1891 Dec. 2.	F.M.	Smith, A. Mervyn., C. E., F. S. A. <i>Europe.</i>
1885 Nov. 4.	A.	Smith, N. F. F. <i>Europe.</i>
1874 June 3.	N.R.	Smith, Vincent Arthur, C. S., Collector. <i>Mosuffarnaghar.</i>
1890 April 2.	A.	Solf, Dr. W. H., German Consulate General. <i>Europe.</i>
1891 Nov. 4.	N.R.	Stein, Dr. M. A. <i>Lahore.</i>
1872 July 3.	N.R.	Stephen, Carr, B. L. <i>Lahore.</i>
1880 Nov. 3.	A.	Sturt, Lieut. Robert Ramsay Napier, B. S. C., Panjab Frontier Force. <i>Europe.</i>
1884 Mar. 5.	A.	Swinhoe, Lieut.-Col. C., B. S. C. <i>Europe.</i>
1864 Aug. 11.	R.	Swinhoe, W., Attorney-at-Law. <i>Calcutta.</i>
1880 Nov. 3.	A.	Swynnerton, Rev. Charles. <i>Europe.</i>
1868 June 3.	R.	Tagore, The Hon. Mahárájá Sir Jotendra Mohun, Bahádur, K. C. S. I. <i>Calcutta.</i>
1865 Sept. 6.	R.	Tawney, C. H., C. I. E., M. A., Principal, Presidency College. <i>Calcutta.</i>
1884 May 5.	N.R.	Taylor, W. C., Settlement Officer. <i>Khurda.</i>
1878 June 5.	N.R.	Temple, Capt. R. C., S. C. <i>Mandalay, Burma.</i>
1875 June 2.	N.R.	Thibaut, Dr. G., Professor, Muir Central College. <i>Allahabad.</i>
1886 Aug. 4.	R.	Thomas, Robert Edmond Skyring. <i>Calcutta.</i>
1847 June 2.	L.M.	Thuillier, Major-Genl. Sir Henry Edward Landor, R. A., C. S. I., F. R. S. <i>Europe.</i>
1889 Mar. 6.	R.	Thuillier, Colonel. H. R., R. E., Surveyor General of India. <i>Calcutta.</i>
1891 Nov. 4.	R.	Thurston, Edgar. <i>Calcutta.</i>
1871 April 5.	F.M.	Treffitz, Oscar. <i>Europe.</i>
1861 June 5.	L.M.	Tremlett, James Dyer, M. A., C. S. <i>Europe.</i>
1890 Feb. 5.	N.R.	Venis, Arthur, M. A., Former Boden Sanskrit scholar, Oxford, Principal, Sanskrit College, Benares. Professor, Queen's College. <i>Benares.</i>
1885 May 6.	R.	Verdeau, Ivan. <i>Calcutta.</i>
1886 Sep. 30.	N.R.	Waddell, Dr. Laurence Austine, M. B., Superintendent of Vaccination. <i>Darjeeling.</i>
1889 Nov. 6.	R.	Walsh, Dr. J. H. Tull, Indian Medical Service. <i>Calcutta.</i>
1865 May 3.	R.	Waterhouse, Col. James, B. S. C., Assistant Surveyor General, Survey of India. <i>Calcutta.</i>

Date of Election.		
1887 Oct. 6.	F.M.	Watson, Lieut. Edward Yerbury. <i>Europe.</i>
1874 July 1.	N.R.	Watt, Dr. George, C. I. E., Reporter on Economic Products. <i>Simla.</i>
1880 Feb. 4.	R.	Wilson, The Hon. Arthur, Judge, High Court. <i>Calcutta.</i>
1891 May 6.	R.	Wilson, Charles Robert, M. A., Bengal Educational Service. <i>Calcutta.</i>
1870 Jan. 5.	R.	Wood-Mason, James, Superintendent, Indian Museum. <i>Calcutta.</i>
1873 Aug. 6.	N.R.	Woodthorpe, Col. Robert Gossett, C. B., R. N., Deputy Quarter-Master-General. <i>Simla.</i>



## SPECIAL HONORARY CENTENARY MEMBERS.

Date of Election.

- 1884 Jan. 15. Dr. Ernst Haeckel, Professor in the University of *Jena*.  
 1884 Jan. 15. Charles Meldrum, Esq., M. A., F. R. S. *Mauritius*.  
 1884 Jan. 15. A. H. Sayce, Esq., Professor of Comp. Philology. *Oxford*.  
 1884 Jan. 15. M. Emile Senart, Member of the Institute of France.  
*Paris*.  
 1884 Jan. 15. Sir Monier Monier-Williams, *Knt.* K. C. I. E., C. I. E., M. A.,  
 D. C. E., LL. D., Boden Prof. of Sanskrit. *Oxford*.

## HONORARY MEMBERS.

- 1848 Feb. 2. Sir J. D. Hooker, K. C. S. I., C. R., M. D., D. C. L., F. R. S.,  
 F. G. S. *Kew*.  
 1853 April 6. Major-General H. C. Rawlinson, K. C. B., D. C. L., F. R. S.,  
*London*.  
 1858 July 6. B. H. Hodgson. *Europe*.  
 1860 Mar. 7. Professor Max Müller. *Oxford*.  
 1860 Nov. 7. Dr. Aloys Sprenger. *Heidelberg*.  
 1860 Nov. 7. Dr. Albrecht Weber. *Berlin*.  
 1868 Feb. 5. Major-General Sir A. Cunningham, R. E., K. C. I. E., C. S. I.,  
 C. I. E. *Europe*.  
 1872 May 1. Sir G. B. Airy, K. C. B., M. A., D. C. L., LL. D., F. R. S. *London*.  
 1872 June 5. Prof. T. H. Huxley, LL. D., PH. D., F. R. S., F. G. S., F. Z. S.,  
 F. L. S. *London*.  
 1875 Nov. 3. Dr. O. Böhtlingk. *Leipzig*.  
 1875 Nov. 3. Prof. J. O. Westwood. *Oxford*.  
 1876 April 5. Dr. Warner Siemens. *Berlin*.  
 1879 June 4. Prof. E. B. Cowell, D. C. L. *Cambridge*.  
 1879 June 4. Dr. A. Günther, v. P. R. S. *London*.  
 1879 June 4. Dr. J. Janssen. *Paris*.  
 1879 June 4. Prof. H. Milne-Edwards. *Paris*.  
 1879 June 4. Prof. P. Regnaud. *Lyons*.  
 1879 June 4. E. Renan. *Paris*.  
 1881 Dec. 7. Professor Hermann L. E. Helmholtz. *Berlin*.  
 1881 Dec. 7. Dr. Rudolph v. Roth. *Tübingen*.  
 1881 Dec. 7. Sir William Thompson, *Knt.*, LL. D., F. R. S., F. R. S. E.,  
*Glasgow*.  
 1883 Feb. 7. W. T. Blanford, A. R. S. M., F. R. S., F. G. S., F. R. G. S.,  
 F. Z. S. *London*.  
 1883 Feb. 7. Alfred Russell Wallace, F. L. S., F. R. G. S. *Parkstone,*  
*Dorsetshire*.  
 1883 Feb. 7. Prof. William Dwight Whitney. *Newhaven, Connecticut,*  
*U. S. A.*

# CORRESPONDING MEMBERS.

Date of Election.		
1844 Oct. 2.	Macgowan, Dr. J.	<i>Europe.</i>
1856 July 2.	Krämer, A. von.	<i>Alexandria.</i>
1856 „ 2.	Porter, Rev. J.	<i>Belfast.</i>
1861 July 3.	Gösche, Dr. R.	<i>Berlin.</i>
1862 Mar. 3.	Murray, A., Esq.	<i>London.</i>
1866 May 7	Schlagintweit, Prof. E. von.	<i>Berlin.</i>

## ASSOCIATE MEMBERS.

1874 April 1.	Lafont, Rev. Fr. E., c. i. e.	<i>Calcutta.</i>
1875 Dec. 1.	Bate, Rev. J. D.	<i>Allahabad.</i>
1875 „ 1.	Maulavi Abdul Hai,	<i>Madrasah. Calcutta.</i>
1882 June 7.	Giles, Herbert.	<i>Europe.</i>
1883 Feb. 7.	Rodgers, C. J.	<i>Amritsar.</i>
1884 Aug. 6.	Moore, F., F. R. S., F. L. S.	<i>London.</i>
1885 Dec. 2.	Führer, Dr. A.	<i>Lucknow.</i>
1886 Dec. 1.	Dás, Saratchandra c. i. e.	<i>Calcutta.</i>

## LIST OF MEMBERS WHO HAVE BEEN ABSENT FROM INDIA THREE YEARS AND UPWARDS.\*

\* *Rule 40.*—After the lapse of 3 years from the date of a member leaving India, if no intimation of his wishes shall in the interval have been received by the Society, his name shall be removed from the List of Members.

The following members will be removed from the next member list of the Society under the operation of the above Rule :

R. H. Macleod, Esq., c. s.  
 Capt. E. H. Molesworth.  
 Lieut. R. R. N. Sturt., B. s. c.  
 Rev. C. Swynnerton.

# LOSS OF MEMBERS DURING 1891.

## BY RETIREMENT.

J. H. Apjohn, Esq., M. I. C. E.  
 Bábu Govinda Kumár Chaudhuri.  
 F. S. Growse, Esq., C. S.  
 A. O. Hume, Esq., C. S.  
 Denzil Ibbetson, Esq., C. S.  
 Jagánnath Khanah, Esq.  
 W. H. Lee, Esq., C. S.  
 Lieutenant-Colonel C. R. Macgregor.  
 C. A. Samuells, Esq., C. S.  
 Thakur Surj Bukhsh Singh.

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## BY DEATH.

### *Ordinary Members.*

Surgeon-Major A. Barclay.  
 C. W. Baumgarten, Esq.  
 John Boxwell, Esq., C. S.  
 Dr. Otakara Feismantila.  
 Rájá Rájendralála Mitra, L. L. D., C. I. E.  
 Lieutenant-Colonel Sir O. B. St. John, B. E., K. C. S. I.

### *Corresponding Member.*

Rev. H. Baker.

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## BY REMOVAL.

### *Under Rule 40.*

A. C. Carlleyle, Esq.  
 H. B. Medlicott, Esq.  
 E. M. Sage, Esq.  
 C. J. Sheridan, Esq.  
 Colonel W. B. Thompson, B. S. C.  
 J. Westland, Esq., C. S.

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[APPENDIX.]

ABSTRACT STATEMENT  
OF  
RECEIPTS AND DISBURSEMENTS  
OF THE  
ASIATIC SOCIETY OF BENGAL  
FOR  
THE YEAR 1891.



## STATEMENT

*Asiatic Society*

Dr.

## To ESTABLISHMENT.

Salaries	...	...	...	Rs.	3,138	5	11
Commission	...	...	...	...	415	8	8
					<u>3,553 14 7</u>		

## To CONTINGENCIES.

Stationery	...	...	...	...	49	13	0
Lighting	...	...	...	...	61	8	0
Taxes	...	...	...	...	819	0	0
Postage	...	...	...	...	662	14	7
Freight	...	...	...	...	8	15	6
Meeting	...	...	...	...	82	8	0
Miscellaneous	...	...	...	...	130	2	9
					<u>1,814 13 10</u>		

## To LIBRARY AND COLLECTIONS.

Books	...	...	...	...	2,372	13	3
Local Periodicals	...	...	...	...	31	0	0
Binding	...	...	...	...	501	15	3
					<u>2,905 12 6</u>		

## To PUBLICATIONS.

Journal, Part I	...	...	...	...	860	4	0
Journal, Part II	...	...	...	...	2,752	13	11
Proceedings	...	...	...	...	832	13	0
					<u>4,445 14 11</u>		

To Printing charges of Circulars, Receipt forms, &c. 155 2 0

To PERSONAL ACCOUNT (Writings off and Miscellaneous) ..... 12,875 9 10  
 174 0 6

## EXTRAORDINARY EXPENDITURE.

Auditor's Fee	...	...	...	...	100	0	0
Barisal Guns	...	...	...	...	6	4	0
To Balance					...	1,40,749	12 8
Total Rs.					...	<u>1,53,899 11 0</u>	

No. 1.

*of Bengal.***Cr.**

By Balance from last report ...	...	...	Rs. 1,37,611 14 10
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**By CASH RECEIPTS.**

Publications sold for cash ...	...	Rs. 1,081 2 11
Interest on Investments ...	...	5,466 0 0
Rent of two rooms on the ground floor of the Society's premises ...	...	720 0 0
Advances recovered ...	...	3 5 6
Miscellaneous ...	...	117 6 6
		<hr/> 7,387 14 11 <hr/>

**By PERSONAL ACCOUNT.**

Admission Fees ...	...	...	576 0 0
Subscriptions ...	...	...	7,566 0 0
Sales on credit ...	...	...	378 12 0
Miscellaneous ...	...	...	379 1 3
			<hr/> 8,899 13 3 <hr/>

Total Income ...	...	16,287 12 2 -
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WILL. KING,  
*Honorary Secretary and Treasurer,*  
*Asiatic Society of Bengal.*

Total Rs. ...	1,53,899 11 0
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Examined and found correct.

MEUGENS &amp; KING,

*Auditors.*

## STATEMENT

### *Oriental Publication Fund in Account*

Dr.

To CASH EXPENDITURE.			
Printing charges ...	...	Rs.	7,225 7 0
Editing charges ...	...	...	2,989 7 6
Binding ...	...	...	0 12 0
Salaries ...	...	...	1,373 8 4
Freight ...	...	...	37 8 0
Stationery ...	...	...	16 8 0
Postage ...	...	...	627 9 9
Contingencies ...	...	...	34 1 9
Commission on collecting bills ...	...	...	65 10 11
			12,370 9 3
To PERSONAL ACCOUNT (Writes off and Miscellaneous)			8 1 0
Total Expenditure ...	.....		12,378 10 3
To Balance...	...	.....	1,171 10 0
			Total Rs. ... 13,550 4 3

## STATEMENT

### *Sanskrit Manuscript Fund in Account*

Dr.

To CASH EXPENDITURE.			
Salaries ...	...	Rs.	1,156 0 0
Postage ...	...	...	28 2 8
Contingencies ...	...	...	44 6 6
Stationery ...	...	...	2 0 0
Purchase of Manuscripts ...	...	...	491 4 0
Bonus given to an old servant retired ...	...	...	240 0 0
			1,961 13 2
To Balance	...	.....	5,487 5 1
			Total Rs. ... 7,449 2 3

## No. 2.

*with the Asiatic Society of Bengal.*

## Cr.

By Balance from last report ... .. Rs. 469 2 9

## BY CASH RECEIPTS.

Government allowance	...	...	Rs.	9,000	0	0
Publications sold for cash	...	...	...	1,471	5	0
Advances recovered	...	...	...	122	0	0
				10,593	5	0

## BY PERSONAL ACCOUNT.

Sales on credit	...	...	...	2,487	12	6
				2,487	12	6

Total Income ... .. 13,081 1 6

Total Rs. ... 13,550 4 3

WILL. KING,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.

MEUGENS & KING,  
Auditors.

## No. 3.

*with the Asiatic Society of Bengal.*

## Cr.

By Balance from last report ... .. Rs. 4,214 2 3

## BY CASH RECEIPTS.

Government allowance	...	...	Rs.	3,200	0	0
Publications sold for cash	...	...	...	8	0	0
				3,208	0	0

## BY PERSONAL ACCOUNT.

Sales on credit	...	...	...	32	0	0
				32	0	0

Total Income ... .. 3,235 0 0

Total Rs. ... 7,449 2 3

WILL. KING,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.

MEUGENS & KING,  
Auditors.

# STATEMENT

## *Personal*

Dr.			
To Balance from last report	...	...	Rs. 2,818 1 0
To CASH EXPENDITURE.			
Advances for purchase of Sanskrit MSS., &c.	Rs.	.....	4,335 5 0
To Asiatic Society	...	...	8,899 13 3
To Oriental Publication Fund	...	...	2,487 12 6
To Sanskrit MSS. Fund	...	...	32 0 0
			<u>11,419 9 9</u>

Total Rs. ... 18,572 15 9

## No. 4.

*Account.*

## Cr.

By Cash receipts	...	...	Rs. 13,664	5	8
By Asiatic Society	...	...	...	174	0
By Oriental Publication Fund	...	...	...	8	1
					<u>13,846 7 2</u>

By Balances.			Due to the Society.			Due by the Society.		
Members	...	...	5,335	5	7	128	10	11
Subscribers	...	...	73	6	0	72	7	0
Employés	...	...	30	0	0	250	0	0
Agents	...	...	169	2	6	504	8	0
Miscellaneous	...	...	292	14	10	218	10	5
			5,900	12	11	1,174	4	4

4,726 8 7 -

## STATEMENT

*Invest*

Dr.

		Nominal.			Actual.		
To Balance from last report ...	...	Rs. 1,38,900	0	0	1,38,543	5	3
To Cash ...	...	...	...	...	6	8	10
Total Rs.	...	1,38,900	0	0	1,38,549	14	1

*Permanent.*

*Funds.	Nominal.			Actual.		
Asiatic Society ...	1,35,000	0	0	1,35,133	0	0
Trust Fund ...	1,300	0	0	1,295	12	9
	1,36,900	0	0	1,36,428	12	9

## STATEMENT

*Trust*

Dr.

To Balance (Servants' Pension Fund) ...	...	...	1,311	3	10
Total Rs.	...	1,311	3	10	

No. 3.

*ments.*

Cr.

					Nominal.	Actual.
By Cash	...	...	...	Rs.	2,000 0 0	2,121 1 4
By Balance*	...	...	...	...	1,36,900 0 0	1,36,428 12 9
Total Rs.				...	1,38,900 0 0	1,38,549 14 1

WILL. KING,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.

MEUGENS & KING,  
Auditors.

No. 6.

*Fund.*

Cr.

By Balance from last report	...	...	...	Rs.	1,261 8 10
By Interest on Investments	...	...	...	...	50 0 0
Total Rs.				...	1,311 8 10

WILL. KING,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.

MEUGENS & KING,  
Auditors



# STATEMENT

*Cash*

Dr.						
To Balance from last report	...	...	...	Rs.	2,195	1 5
RECEIPTS.						
To Asiatic Society	...	...	...	...	7,337	14 11
To Oriental Publication Fund	...	...	...	...	10,593	5 0
To Sanskrit Manuscript Fund	...	...	...	...	3,203	0 0
To Personal Account	...	...	...	...	13,664	5 8
To Investment	...	...	...	...	2,121	1 4
To Trust Fund	...	...	...	...	50	0 0
Total Rs.				...	39,214	12 4

# STATEMENT

*Balance*

Dr.						
To Cash	...	...	...	Rs.	7,564	10 3
To Investment	...	...	...	...	1,36,428	12 9
To Personal Account	...	...	...	...	4,728	8 7
Total Rs.				...	1,48,719	15 7

No. 7.

Account.

Cr.

## EXPENDITURE.

By Asiatic Society	...	...	...	Rs.	12,975	13	10
By Oriental Publication Fund	...	...	...	...	12,370	9	3
By Sanskrit Manuscript Fund	...	...	...	...	1,961	13	2
By Personal Account	...	...	...	...	4,335	5	0
By Investment	...	...	...	...	6	8	10
By Balance	...	...	...	...	7,564	10	3

Total Rs. ... 39,214 12 4

WILL. KING,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.

MEUGENS &amp; KING

Auditors.

No. 8.

Sheet.

Cr.

By Asiatic Society	...	...	...	Rs.	1,40,749	12	8
By Oriental Publication Fund	...	...	...	...	1,171	10	0
By Sanskrit Manuscript Fund	...	...	...	...	5,487	5	1
By Trust Fund	...	...	...	...	1,311	3	10
				Total Rs.	1,48,719	15	7

WILL. KING,  
Honorary Secretary and Treasurer,  
Asiatic Society of Bengal.

Examined and found correct.

MEUGENS &amp; KING,

Auditors.



# JOURNAL

OF THE

## ASIATIC SOCIETY OF BENGAL,

FOR MARCH, 1892.

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The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 2nd March, 1892, at 9 p. m.

Hon'ble Sir A. W. Croft, K. C. I. E., M. A., President, in the chair.

The following members were present :—

H. K. W. Arnold, Esq., Bábu Nobinchánd Burál, E. C. Cotes, Esq., Bábu Saratchandra Dás, Dr. A. F. R. Hoernle, A. Hogg, Esq., Rev. H. B. Hyde, C. Little, Esq., Kumár Rameswár Maliáh, Bábu Asutosh Mukhopádhyaýa, T. R. Munro, Esq., L. de Nicéville, Esq., J. D. Nimmo, Esq., Pandit Haraprasád Sástri, Dr. J. H. Tull Walsh, C. R. Wilson, Esq., J. Wood-Mason, Esq.

Visitors :—C. P. Landon, Esq., T. M. Munro, Esq., Rev. F. H. de Winton (Colombo).

The minutes of the last meeting were read and confirmed.

Forty-three presentations were announced, details of which are given in the Library List appended.

The following gentlemen, duly proposed and seconded at the last meeting of the Society, were ballotted for and elected Ordinary Members :—

Hon'ble Raja Oodavpratab Sing, Raja of Bhinga, Oudh.  
Bábu Gopal Ballabh Das, M. A.  
Prof. Nrisimha Chunder Mukerjee.

The following gentlemen are candidates for election at the next meeting :—

Bábu Janaki Nath Bhattacharjee, Professor, Ripon College, Calcutta,

\*proposed by C. Little, Esq., M. A., seconded by C. R. Wilson, Esq., M. A.

Surgeon Captain F. P. Maynard, I. M. S., proposed by Dr. J. H. Tull Walsh, seconded by L. de Nicéville, Esq., F. E. S.

The COUNCIL proposed the following gentleman for election as an Associate Member at the next meeting :—

Pundit Satyavrata Samasrami, Calcutta, on account of his being the most distinguished Vedic Scholar in India and having edited a number of works for the Bibliotheca Indica.

The following gentleman has expressed a wish to withdraw from the Society :—

Deputy Surgeon-General J. G. Pilcher.

The SECRETARY reported the death of the following member :—

Asutosh Gupta, Esq., C. S.

The SECRETARY read the names of the gentlemen who had been appointed by the Council to serve on the various Committees for the present year.

#### FINANCE AND VISITING COMMITTEE.

H. K. W. Arnold, Esq.

Dr. J. Scully.

Bábu Pratápa Chandra Ghosha.

Colonel J. Waterhouse.

Dr. A. F. R. Hoernle.

J. Wood-Mason, Esq.

A. Pedler, Esq.

#### LIBRARY COMMITTEE.

Nawáb Abdul Latif Bahádur.

Pandit Mahámahopádhyáya Mahes-  
chandra Nyáyaratna.

H. K. W. Arnold, Esq.

L. de Nicéville, Esq.

Bábu Gaurdás Bysack.

A. Pedler, Esq.

Dr. D. D. Cunningham.

Hon. Dr. Mahendralál Sarkár.

Bábu Pratápa Chandra Ghosha.

Dr. J. Scully.

Dr. A. F. R. Hoernle.

C. H. Tawney, Esq.

Prince Jahán Qudr Muhammad

Colonel J. Waterhouse.

Wáhid Ali Bahádur.

J. Wood-Mason, Esq.

J. Mann, Esq.

\* Bábu Asutosh Mukhopádhyáya.

#### PHILOLOGICAL COMMITTEE.

Nawáb Abdul Latif Bahádur.

Bábu Nilmani Mukerji.

J. Beames, Esq.

Bábu Asutosh Mukhopádhyáya.

Bábu Gaurdás Bysack.	Pandit Mahámahopádhyáya Mahes-
Dr. A. Führer.	chandra Nyáyaratna.
G. A. Grierson, Esq.	Captain D. C. Phillott.
Bábu Pratápa Chandra Ghosha.	Bábu Rajkumár Sarvádrikari.
Dr. A. F. R. Hoernle.	Sir Sayid Ahmad.
Colonel H. S. Jarrett.	Hon. Dr. Mahendralál Sarkár.
Manlvi Khudá Baksh Khán Bahá-	Pandit Haraprasád Shástri.
dur.	C. H. Tawney, Esq.
C. J. Lyall, Esq.	Captain R. C. Temple.
J. Mann, Esq.	Dr. G. Thibaut.
Bábu Bhudeva Mukerji.	A. Venis, Esq.

## COINS COMMITTEE.

Dr. A. Führer.	Dr. J. Scully.
Dr. A. F. R. Hoernle.	V. A. Smith, Esq.
J. H. Rivett-Carnac, Esq.	

## HISTORY AND ARCHÆOLOGICAL COMMITTEE.

Hon. Justice Amir Ali.	Bábu Pratápa Chandra Ghosha.
H. K. W. Arnold, Esq.	Mahámahopádhyaya Kavirája
J. Beames, Esq.	Shyamaldás.
Bábu Gaurdás Bysack.	J. H. Rivett-Carnac, Esq.
W. H. P. Driver, Esq.	Captain R. C. Temple.
Dr. A. Führer.	J. Wood-Mason, Esq.

## NATURAL HISTORY COMMITTEE.

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E. C. Cotes, Esq.	Dr. Fritz Noetling.
Dr. D. D. Cunningham.	R. D. Oldham, Esq.
J. F. Duthie, Esq.	S. E. Peal, Esq.
Dr. G. M. Giles.	Dr. J. Scully.
Dr. G. King.	J. Wood-Mason, Esq.
C. S. Middlemiss, Esq.	

## PHYSICAL SCIENCE COMMITTEE.

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Dr. A. W. Alcock.	Dr. Fritz Noetling.
P. N. Bose, Esq.	R. D. Oldham, Esq.
Bábu Gaurdás Bysack.	A. Pedler, Esq.
Dr. D. D. Cunningham.	Dr. J. Prain.
J. Eliot, Esq.	Hon. Dr. Mahendralál Sarkár.
S. R. Elson, Esq.	Dr. J. Scully.

Dr. G. M. Giles.

Dr. G. King.

Rev. Father E. Lafont.

J. J. D. La Touche, Esq.

C. S. Middlemiss, Esq.

Dr. W. J. Simpson.

Colonel H. Thuillier.

Colonel J. Waterhouse.

J. Wood-Mason, Esq.

Paṇḍit Hari Mohan Vidyābhūṣaṇ read a note on the Buddhist Bhava Chakra, as described by Kshemendra. Communicated by the Philological Secretary.

*The Buddhist Bhava Chakra (Cycle of Existence) by Hari Mohan Vidyābhūṣaṇ.*

The theory of Pratītya-Samutpāda (causal formation, or evolution,) has ever been regarded by the Buddhists as containing the essence of Buddha's doctrine, and occupies the highest place in the philosophy of Buddhism, and occurs in both schools of Buddhism, in the lesser and the greater vehicles. The Pāli Mahāvagga and the Lalita-Vistara of the Northern Buddhist literature, both explain it in the same way. Mr. Foucaux has published a French translation of the latter in the "Annales du Musée Guimet," and Professor Sir Monier Williams gives an account of the theory in his "Buddhism," p. 102. But these, being merely translations from the texts (Pāli and Sanskrit), do not throw any additional light on the interpretation of the original.

In course of reading the Avadāna Kalpalatā with Babu Sarat Chandra Das, which is being published for the Bibliotheca Indica, I came across the 75th Pallava called Pratītya Samutpāda Avadāna which consists of only 11 Ślokas.

Here the great poet Kshemendra has so clearly set forth the theory in his inimitable style of versification that one is almost tempted to regard it as the key to the abstruse Buddhist ontology which is so imperfectly understood.

I have carefully studied Sir Monier Williams' account of the theory, and the comparison which he has made between Buddhism and the Vedānta and Sāṅkhya schools of philosophy. I have also compared the text of the Kalpalatā with the controversial argumentation of Vāchaspati Miśra in Bhāmatī, and I find that there are additional materials to be drawn from the latter for a thorough elucidation of the famous theory.

The Kalpalatā runs as follows :—

• THE TEXT.

सर्वमविद्यामूर्ध्नि संसारतत्त्वकारवैचित्र्यम् ।

आप्तुं वक्तुं चर्तुं कः शक्नोऽन्यः सर्वज्ञात् ॥ १ ॥

आवृत्त्यां स्वस्तिमान् पूर्वं जिगो जेतवने स्थितः ।  
 अशेषदर्शी भगवान् भिक्षुसंघं समावृतः ॥ २ ॥  
 ब्रह्मयुतं श्रेयसे प्रज्ञालोकनिर्मेजमानसाः ।  
 प्रतीत्यसमुत्पादं वः कथयामि यथाक्रमम् ॥ ३ ॥  
 अविद्यावासनेवेयं दुःखस्रग्धस्य भूयसः ।  
 संसारविषयकस्य मूलबन्धविधायिनी ॥ ४ ॥  
 तत्प्रत्ययास्तु संस्काराः कायवाङ्मानसात्मकाः ।  
 संस्कारोत्पद्य विज्ञानं मनः षष्ठेन्द्रियात्मकम् ॥ ५ ॥  
 तत्प्रत्ययं नामरूपं संज्ञासन्दर्शनाभिधम् ।  
 मनः षष्ठेन्द्रियस्थानं षडायतनमप्यतः ॥ ६ ॥  
 षडायतनसंश्लेषः स्पर्श इत्यभिधीयते ।  
 षट्स्पर्शानुभवो यश्च वेदना सा प्रकौर्त्तिता ॥ ७ ॥  
 तथा विषयसंज्ञेश-रागात् तृष्णा प्रजायते ।  
 कामादिषु तदुद्भूतमुपादानं प्रवर्त्तते ॥ ८ ॥  
 उपादानोद्भवः कामरूपारूपमयो भवः ।  
 नानायोगिपरावृत्त्या जातिर्भवसमुद्भवा ॥ ९ ॥  
 जरामरणशोकादि-सन्ततिर्जातिसंश्रया ।  
 अविद्यादिनिरोधेन तेषामुपरमक्रमः ॥ १० ॥  
 प्रतीत्योत्पादोऽयं षडङ्गतिरविद्याकृतपदः  
 स चिन्त्यो युष्माभिर्विजनविश्रामशमिभिः ।  
 परिज्ञातः सन्ध्याग्रजतिं किञ्च कावे तनुतां  
 तनुत्वं सम्प्राप्तः सुखतरश्चिवार्यश्च भवति ॥ ११ ॥

## TRANSLATION.

(1.) Who except the Omniscient can understand, explain, and dissipate, the manifold operations of this tree of Samsāra, of which Avidyā is the root ?

(2.) In ancient times, when the blessed all-seeing Lord Buddha was residing at the Jeta grove, in Śrāvastī, he spoke thus to the assembled Bhikṣhus :—



(3.) Oh Bhikṣus, whose minds have become purified by the light of wisdom, listen to me. I will explain to you the law of causes and effects in their proper order:—

(4.) The all enveloping Avidyá is the radical up-binding cause of Saṃsára, the great tree of poison which is full of misery.

(5.) Avidyá is the efficient cause of Saṃskáras, which have in them the essence of body, speech, and mind. Saṃskára gives rise to Vijñána (consciousness), which has in it the conception of mind.

(6.) From Vijñána comes Náma-Rúpa, the idea of individuality, which brings into operation the six organs of sense.

(7.) The connection, or contact, of Náma-Rúpa with the six organs of sense is called Sparśa. Sensation caused by contact with the senses is called Vedaná.

(8.) Vedaná operating on objects produces Trishná (desire). The activity of desire is called Upádána.

(9.) Upádána produces Bhava (re-incarnation), in the three states, namely Káma, Rúpa, and Arúpa.

Re-incarnation causes species, i. e., moving to different kinds of existence.

(10.) Jāti, or individualized existence, brings on old age, misery, and death. Cessation from Avidyá stops all these sufferings.

(11.) This cycle of causality based on Avidyá is of manifold operation. You, O Bhikṣus, who enjoy peace and retirement in solitude should fully comprehend it by meditation. So that in course of time Avidyá becoming weakened may be dissipated.

The Buddhists presuppose the existence of certain aggregates of atoms (some internal and some external) which constitute this universe. The external aggregates constitute the elements of earth, water, fire, &c. The internal or mental aggregates consist of Skandhas or groups of sensation, knowledge, feeling, &c. All these taken together constitute the basis of all personal existence. The personal existence is formed out of these by the cycle of causality called Pratítýa Samutpáda headed by Avidyá, a term which has been variously rendered by scholars as Nescience, Ignorance, &c.

First of all Avidyá operates on the basis of the impersonal existence of a being, or in other words on the union of the two kinds of aggregates, and thereby generates what is called Saṃskára.

It must not be here supposed that by the appearance of Saṃskára Avidyá at all disappears. It continues to work as a concurrent cause with Saṃskára. Saṃskára in its turn causes consciousness, or Vijñána, a term by which the Buddhists convey the idea of soul. When Vijñána appears, Saṃskára also continues to operate as a concurrent cause; Vijñána again generates Náma and Rúpa, i. e., the individual being.

The individual being is possessed of the six organs of sense. The operation of these six organs of sense is called *Sparśa*. The state of pleasure, pain, or indifference, produced by *Sparśa*, is called *Vedanā*. *Vedanā*, or Sensation, working in reference to objects external or internal produces desire. Desire again in reference to its objects generates a kind of activity or *Upādāna*, a word which conveys the same idea as the well known Buddhist term "Karma." This activity causes *Bhava*, *i. e.*, a new existence based on a new set of aggregates. This again by *Upādāna*, now acting as a concurrent cause, is moved to existence in species, *i. e.*, *Jāti*. The condition of existence in the species, be it in a god of long life or in a short lived insect, is old age, misery, and death.

In this process it is evident that a cause, or a system of causes, operating on each other, or on the aggregates, produces effects which are changeful according to the nature of Karma in the individual being. In Buddhism though it is generally held that everything is transient and illusory, the identity or oneness of an entity in all its embodiments is maintained. This is clearly illustrated by the writers of the *Jātakas* of Buddha and other saintly Buddhists. For at the end of each *Jātaka* its hero is made to declare that in such and such birth he was a god, a tiger, or a worm, and so on.

The idea of *Ekotibhāva* the continued oneness of an entity in all its embodiments thus pervading the doctrine of Buddhism forces us to think that *Dharma*, or phenomena, alone are transient and non-permanent, and not the principal entity. The successions of phenomena and the conditions of existence are changeful, the entity or *Sattva* that enjoys or suffers remaining all the while the same.

The Buddhists think that it is possible to liberate the *Sattva*, the individual self, from the influence of *Avidyā*, and thereby from the working of the cycle of causality believed to be the prime mover of the *Bhava Chakra*.

The following papers were read :—

1. *Rāma-tankis*,—By Man Mohan Chakravarti, M. A., B. L.
2. *A vocabulary of the Korwa language collected*,—By W. CROOKE, B. A., C. S.
3. *On the Topography of Old Fort William, Calcutta*.—By C. R. WILSON, M. A. *Philological Secretary*.

The papers will be published in the Journal, Part I.

## LIBRARY.

The following additions have been made to the Library since the meeting held in February last.

## TRANSACTIONS, PROCEEDINGS AND JOURNALS,

*presented by the respective Societies and Editors.*

Baltimore. Johns Hopkins University,—American Chemical Journal, Vol. XIII, Nos. 2-6.

———. American Journal of Mathematics, Vol. XIII, Nos. 3 and 4.

———. Register for 1890-91.

Batavia. Bataviaasch Genootschap van Kunsten en Wetenschappen,—Notulen, Deel XXIX, Aflevering 3.

———. Tijdschrift voor Indische Taal-, Land-en Volkenkunde. Deel XXXV, Aflevering 1.

Bombay. Bombay Natural History Society,—Journal, Vol. VI, No. 3.

———. The Indian Antiquary,—Vol. XXI, Part 256.

Budapest. Société Hongroise de Géographie,—Bulletin, Tome XIX, Nos. 8-10.

Calcutta. Asiatic Society of Bengal,—Proceedings, No. 1, January 1892.

———. Indian Engineering,—Vol. XI, Nos. 6-9.

———. Photographic Society of India,—Journal, Vol. V, No. 2.

Cassel. Des Vereins für Naturkunde zu Kassel,—Bericht, XXXVI-XXXVII.

Florence. La Società Africana d' Italia,—Bullettino, Tome VII, Fascicolo 5° e 6°.

Halifax. Nova Scotian Institute of Natural Science,—Proceedings and Transactions, Vol. VII, Part 4.

Havre. Société de Géographie Commerciale du Havre,—Bulletin, Novembre-Décembre 1891.

Jassy. Societății Științifice Și Literare din Iași,—Arhiva, Anno II, Fasc. 10-12.

Liège. Société Géologique de Belgique,—Annales, Tome XVIII, No. 2 ; XIX, 1.

London. Geological Society,—Quarterly Journal, Vol. XLVIII, No. 189.

———. Nature,—Vol. XLV, Nos. 1160-63.

———. The Academy,—Nos. 1029-32.

———. The Athenæum,—Nos. 3352-55.

Melbourne. Royal Society of Victoria,—Transactions, Vol. III, Part I.

Mexico. La Sociedad Científica "Antonio Alzate,"—*Memorias y Revista*, Tome V, Nos. 1 y 2.

Naple. La Società Africana d' Italia,—*Bollettino*, Anno X, Fasc. 11 et 12.

New York. American Museum of Natural History,—*Annual Report of the Trustees for 1890-91*.

Paris. *Journal Asiatique*,—III<sup>e</sup> Série, Tome VI; V<sup>e</sup>, VI; VI<sup>e</sup>, IV-VI, X; VII<sup>e</sup>, XI, Nos. 1 et 2, XIII, No. 1, XIV-XIX.

———. *La Société de Géographie*,—*Bulletin*, Tome XII, No. 3.

———. *Compte Rendu des Séances*, No. 1, 1892.

Philadelphia. Academy of Natural Sciences of Philadelphia,—*Proceedings*, Part II, 1891.

———. American Philosophical Society,—*Proceedings*, Vol. XXIX, No. 135.

Rio de Janeiro. Observatorio do Rio de Janeiro,—*Revista do Observatorio*, Anno VI, No. 11.

Rome. La Società Degli Spettroscopisti Italiani,—*Memorie*, Tome XX, Nos. 11 et 12.

Taiping. Government of Perak,—*Perak Government Gazette*, Vol. V, Nos. 2-4.

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JOURNAL  
OF THE  
ASIATIC SOCIETY OF BENGAL,  
FOR APRIL, 1892.

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The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 6th April, 1892, at 9-15 p. m.

Hon'ble Sir A. W. Croft, K. C. I. E., M. A., President, in the Chair.

The following members were present :—

H. K. W. Arnold, Esq., Bábu Gaurdás Bysack, E. C. Cotes, Esq., Bábu Sarat Chandra Dás, The Most Rev. Dr. Paul Goethals, Rev. H. B. Hyde, W. H. Jobbins, Esq., C. Little, Esq., Kumár Rameswár Maliáh, Bábu Asutosh Mukhopádhyaýa, T. R. Munro, Esq., L. de Nicéville, Esq., R. D. Oldham, Esq., E. J. Rowe, Esq., Pandit Haraprasád Shástri, Dr. J. H. Tull Walsh, C. R. Wilson, Esq.

Visitors :—Dr. W. W. Sheppard, W. J. Simmons, Esq., F. H. Smith, Esq.

The minutes of the last meeting were read and confirmed.

Twenty-five presentations were announced, details of which are given in the Library List appended.

The following gentlemen, duly proposed and seconded at the last meeting of the Society, were ballotted for and elected Ordinary Members :—

Bábu Janaki Nath Bhattacharjee.

Surgeon-Captain F. P. Maynard.

The following gentleman proposed by the Council at the last meeting was ballotted for and elected an Associate Member :—

Pandit Satyavratá Samasrami.



The following gentlemen are candidates for election at the next meeting :—

Hon'ble Sir C. A. Elliott, K. C. S. I., C. I. E., Lieutenant-Governor of Bengal, proposed by the President, seconded by Col. J. Waterhouse.

G. W. Forrest, Esq., B. A., Assistant Secretary to the Government of India, Home Department, proposed by Col. J. Waterhouse, seconded by C. Little, Esq., M. A.

Lieutenant W. A. Harrison, R. E., Fort William, proposed by F. J. Rowe, Esq., M. A., seconded by C. Little, Esq., M. A.

Colonel T. H. Haldich, R. E., Survey of India, proposed by Col. J. Waterhouse, seconded by C. Little, Esq., M. A.

The PRESIDENT announced that in consequence of his approaching departure from India on furlough, it would be necessary for him to place his resignation in the hands of the Society. In doing so, he begged again to express his thanks to the Society for the honour they had done him in electing him a second time to the office of President, an honour of which he was deeply sensible.

The following papers were read :—

1. *An Account of the Journey of a Bengal Pandit to Tibet in 1037–38 A. D., by Bromton, the founder of the Grand Hierarchy of Tibet.*—By BABU SARAT CHANDRA DÁS, C. I. E.

The Paper will be published in the Journal, Part I.

2. *Brief note on the site of Ghiaspur, Bengal.*—By H. BEVERIDGE, Esq., C. S.

Thomas in his initial coinage of Bengal, J. A. S. B. for 1867, pp. 50, 51 and 62 mentions a mint-town in Bengal named Ghiáspur and says that he has been unable to identify it. I beg to suggest that it is Ghiáspur on the left bank on the Bhagirathi between Baluchar and Jangipur.

On the right bank of the Bhagirathi on the way from Baranagar (famous for Rani Bhowani's temples) to Raghunathganj opposite Jangipur, there is a place called Ghiásábád. It is described by Captain Layard in J. A. S. B. for 1853, p. 577, and two stopes from there are now in the Indian Museum. (Vide Dr. Anderson's Catalogue, Vol. II, s. v. Ghiásábád.)

At Ghiasabad I saw the dargah described by Captain Layard. It is in a desolate condition, but contains four Mahomedan tombs. One is in the centre and is higher than the others. I was told that it was the tomb of Ghiásuddín Sultan Ahl-i-Qresh, and that the other three were those of his wife and two daughters. Captain Layard was unable

to make out what Ghiassuddin this was. I beg to suggest that it was Bahadur Khan or Bahadur Shah who also had the name of Ghias or Ghiassuddin. (See Thomas and the Riyáz.) Bahadur Shah was skinned according to Ibn Batuta and the skin was taken to Delhi, but the body may have remained.

The other name of Ghiásabád is Bádrihat (not Bodrihat, or Badrihat) and Hunter speaks of this as the Hindu name. But this is doubtful. May it not be a contraction for Bahadurihat, i. e., the market of Bahadur Shah?

I have not visited the Ghiaspur or the other side of the river. It is about 2 miles higher up the river than Ghiásabád. I am told that there is nothing there, that the place has been washed away, and that there is also jungle. Bahadur Shah, or Ghiás, whoever he was, may have had his city on both sides of the river just like Murshidabad was. Ghiáspúr is disguised in the map under the name Goyespoor. If the Ghiás of Ghiasabad be not Bahadur Shah he may be the Ghiásuddin who was killed in battle with Nasiruddin. The words "near Gaur" may be a mistake. Of course Ghiásabád may really be Ghiáspur.

### 3. *Remarks on the Fauna of Narcondam and Barren Island.*—By D. PRAIN, ESQ., M. B.

During a botanical visit to these two islands, the results of which are now being elaborated, the writer, though unable and indeed unqualified to devote much attention to their fauna, could not avoid coming in contact to some extent with their animal and insect life. And perhaps his few rough notes made at the time, if thrown into a connected form, may induce by their perusal some qualified animal biologist to visit and investigate them thoroughly. In Mr. Mallet's exhaustive monograph of the geological structure and physiographical aspects of the islands\* their flora and fauna are only casually mentioned; similarly, in the writer's forthcoming notice of their vegetation, there can be but incidental allusions to their topography, geology, or zoology. Yet from what the writer was himself able to observe it is probable that their zoology will prove as interesting as their geology or their botany. It need hardly be said that the notes which follow allude entirely to air-breathing creatures and that no reference will be made to the marine fauna of the localities.

**MAMMALIA:**—A rat swarms everywhere on both islands and is the most plentiful mammal present. Examples preserved in the Indian Museum, obtained in Barren Island by Mr. Oldham, show that the

\* *Memoire of the Geol. Survey of India*, vol. xxi, pp. 251—256.

species is the Andamanese form of the widely distributed Tree-Rat (*Mus rattus* VAR. *andamanensis*.)\*

In Narcondam at dusk a frugivorous bat was observed flitting from tree to tree, and in Barren Island the writer came upon an example of *Ficus Rumphii*, on the outer aspect of the outer cone and about half a mile to the north of the landing place at the hot-spring, which was the home of a colony of these creatures. The writer was able to reach a point on the cliff almost overlooking the tree and where he was not more than twenty-five yards away from the bats. He was able to see that they were of a very dark brown (almost black) colour but, having no fowling-piece, he could not secure a specimen.† It is not improbable that, as in the case of the rats, the bats on the two islands belong to the same species.

Goats have more than once been landed on both islands. On Narcondam there were however none to be seen and when one recollects that for a considerable portion of the year the island is absolutely waterless the fact is not surprising. And those formerly landed on Barren Island must also have perished, for a few years ago, Col. Tucker, then in charge of the Andamans, found it necessary to land five more. During our visit we several times saw three goats in company and as we discovered among the lava blocks the skeletons of two others it is not impossible that we were thus able to account for the whole five. The three seen together were all adults, perhaps therefore they have either not begun to breed or their young have been unable to survive. A well-trodden foot-path across the lava causeway near the landing-place shows that the goats come daily, at least during the dry season, to drink at the only spring the island possesses, hot-water charged with over 200 grains per gallon of saline matter.‡ Each morning during the writer's

\* *Catal. of Mammalia in the Indian Museum*, pt. ii, p. 63.

† Had a specimen been shot it probably could not have been secured, for a direct descent from the writer's position to the foot of the tree was impracticable and to reach the spot where the specimen must have fallen would have entailed:—1, a return to the landing-place (two hours work to begin with); 2, rowing half a mile to the mouth of the gully in which the tree stood; and (granting that the sea-mouth of the proper gully was hit off and, if it was, that a landing could have been effected—neither event being at all a necessary consequence,) 3, a search for the particular tree involving a climb of over 800 feet through a particularly difficult jungle with much the same prospect of ultimate success that there would be in the proverbial search for "a needle in a haystack." But this should only whet the appetite of the true collector for a visit to the islands; it will however show that the geologist or botanist who visits the place with but a limited time at his disposal, must confine his attention to his own subject and can do but *dilettante* work in any other direction.

‡ *Memoirs of the Geol. Survey of India*, vol. xxi, p. 277.

visit we could see when we landed, from the new foot-prints on the wet sand round the spring and from the fresh dung there and along the pathway, that the goats had visited the spot overnight.\*

\* BIRDS:—A brief sketch of the Avi-fauna of the islands has already been written by Mr. A. O. Hume.† His visit to each island was however very short; it may not therefore be uninteresting to give a list of the birds seen by him and to mention in addition those seen and recognised by the writer. It is unnecessary to say that even now the list must be very far from complete.

*List of the Birds of Narcondam and Barren Island.*

1. CUNCUMA LEUCOGASTER Gmel. (White-bellied Sea-Eagle.) *Stray Feathers* ii, 149.

Very plentiful in both islands, but especially in Narcondam, where to watch six or eight of them sweep and wheel and dart at each other, apparently in play, far overhead, was a most fascinating occupation. While ascending the mountain that composes the island we saw what was evidently the nest of this species at about 1,500 ft. elev.

DISTRIB. India, Burma, Andamans, Nicobars, Malaya.

2. COLLOCALIA LINCHI Horsf. (Rock Swiftlet.) *Stray Feathers* ii, 157.

A swiftlet is very common on both islands and can be seen as one rows along the coast darting in and out from every cavern hollowed by the sea under the old lava-flows. As no edible birds'-nests are found on either island this is most probably the species that one observes.‡

DISTRIB. Andamans, Nicobars, Malaya.

\* The landing of goats on such islands has little to recommend it from the economic point of view while the humanitarian aspect of the act has two sides. It is no doubt praiseworthy to attempt to stock such islands with goats in the hope that their flesh may prove of use to shipwrecked mariners, but to deliberately condemn the animals to a death by thirst—as is done every time that goats are landed on Narcondam—appears to the writer to be an act which should not be repeated. Nor is it at all certain that the landing of goats on Barren Island may not be—all the physical conditions of the island considered—an act of even more refined cruelty.

† *Stray Feathers*, vol ii, pp 103–110. ‡ The localities are again mentioned in connection with the birds themselves in Mr. Hume's detailed list of Andamans birds, l. c. pp 189–324.

‡ It ought to be observed however that some recent writers, (very notably Guillemard, in the *Cruise of the Marchesa*, vol. ii), return to the view which Hume, l. c., so strenuously opposes and apparently satisfactorily refutes, that *Collocalia Linchi* is the swift which makes edible nests. If Guillemard be right then the Rock Swiftlet referred to by Mr. Hume and the writer must be a different species.

3. *HALCYON ATRICAPILLUS* Gmel. (Small Kingfisher.) *Stray Feathers* ii, 168; also p. 104.

This, Mr. Hume says, *l. c.* p. 104, is most probably the Kingfisher he observed on Barren Island. Oddly enough the writer saw no Kingfisher on Barren Island, but several individuals, perhaps of this species, were very actively employed on the coast at the north-east corner of Narcondam.

DISTRIB. India, Burma, Andamans, Nicobars.

4. *RHYTICEROS NARCONDAMI* Hume. (The Narcondam Hornbill). *Stray Feathers* i, 411; ii, 176.

This species, which is confined to Narcondam, is exceedingly plentiful there. It is very far from shy, for on one occasion when the writer and his attendants were busy cutting down a tree, three or four of these birds, apparently attracted by the noise, came and settled above us, continuing to scream and chatter overhead, while the tree vibrated under our strokes, for some time before making up their minds to fly away.

DISTRIB. Endemic.

5. *PALAEORNIS AFFINIS* Tytler. (Red-checked Andaman Paroquet.) *Stray Feathers* ii, 184.

Common on both islands.

DISTRIB. Andaman group, including Coco Islands and Preparis.

6. *EUDYNAMYS MALAYANA* Cab. (Andaman Koel). *Stray Feathers* ii, p. 192.

The writer saw this Koel several times during his stay on Narcondam; Mr. Hume did not happen to have an opportunity of noting the species.

DISTRIB. India, Burma, Andamans, Nicobars, Malaya.

7. *ARACHNECHTHRA ANDAMANICA* Hume. (Andaman Sun-Bird). *Stray Feathers* ii, 198.

Observed by Mr. Hume on both islands, not seen by the writer.

DISTRIB. Andaman group, including Coco Islands and Preparis.

8. *OTOCOMPSA EMERIA* Shaw. (Red-Whiskered Bulbul.) *Stray Feathers* ii, 225.

Observed by Mr. Hume on Barren island, not seen by the writer.

DISTRIB. India, Burma, Andamans, Nicobars (introduced).

9. *CORVUS LEVALLANTII* Lesson. (The Bow-billed Corby). *Stray Feathers* ii, 243.

The writer one day noticed five of these large Andaman Crows

on Barren Island. There were none there apparently when Mr. Hume visited the island.

DISTRIB. Himalaya; India; Burma, Andamans; Malaya.

• 10. CARPOPHAGA AENEAE Linn. (Imperial Pigeon.) *Stray Feathers*, ii, 260.

Noticed once on Narcondam.

DISTRIB. Himalaya; India; Indo-China, Andamans; Malaya.

\* 11. CARPOPHAGA BICOLOR Scop. (Pied Fruit-Pigeon.) *Stray Feathers* ii, 260.

Exceedingly plentiful on both islands; a visitant from the southward.

DISTRIB. Malaya; Nicobars; Andamans (a visitant).

12. CALOENAS NICOBARICA Linn. (The Nicobars Fruit-Pigeon.)

Noticed several times on Narcondam, and once (three individuals together) on Barren Island, on the inner aspect of the outer crater to the south of the landing-place; a visitant from the Nicobars.

DISTRIB. Nicobars; Malaya; Andamans (a visitant).

• 13. CIRREPIDESMUS MONGOLICUS Pallas. (Mongolian Shore-Plover.) *Stray Feathers* ii, 289.

Rather common on both islands.

DISTRIB. Eastern Asia.

14. TRINGOIDES HYPOLEUCUS Linn. (Sand-Piper.) *Stray Feathers* ii, 299.

Very common on both islands.

DISTRIB. Cosmopolitan.

15. GALLINULA PHOENICURA Penn. (Water-Hen.)

Barren Island. This was not met with by Mr. Hume and it is not a bird that one would expect to see in these islands. Yet each time we landed on Barren Island and each time we returned to the beach from the interior we observed in the vicinity of the small hot-spring at the landing-place what appeared to us to be the same individual of this species. On being disturbed it walked leisurely away and disappeared among the crevices of the adjacent black lava-flow. Mr. Hume notes his having met with the species in suitable localities everywhere from the Great Coco to Acheen; we must therefore suppose that the individual we saw had by some accident reached the island from one of the neighbouring members of the group and was making the best of the situation.

DISTRIB. India; Indo-China, Andamans; Nicobars, Malaya.

16. *DEMIGRETTA SACRA* Gmel. (Blue Reef-Heron.) *Stray Feathers* ii, 304.

Common on both islands.

DISTRIB. India, Burma, Andamans, Nicobars.

17. *ARDEOLA GRAYII* Sykes. (Pond-Heron.) *Stray Feathers* ii, 309.

Barren Island only (*Hume*); not seen by the writer.

DISTRIB. India; Andamans (a visitant).

18. *STERNULA MELANAUCHEN* Temm. (Snowy Tern.) *Stray Feathers* ii, 319; also p. 107.

Barren Island (*Hume*).

DISTRIB.\* Malaya; Nicobars; Andamans.

The common Fowl is said to have been landed on both islands along with the goats, there is now, however, no trace of its existence. Possibly the large lizard—*Hydrosaurus salvator*—which is common, at least on Narcondam, may be held responsible for its disappearance, nothing being more certain than that a fowl, if nesting on the ground, must sooner or later fall a victim to this voracious creature.

REPTILES:—There is on Narcondam at least one land-snake, for the writer and his companion (Mr. McCausland, commander of the "*Nancowry*") came upon one cast-off skin in the centre of the island.

Lizards, both iguaniform lizards and skinques, are very common on Narcondam though not at all frequent on Barren Island. The whole of the crested ones were very shy but the skinques were the reverse of timid.† The large water-lizard, *Hydrosaurus salvator*, is very common on Narcondam and is so unused to being disturbed that it waits till one comes so close as to be able to touch it before turning aside into the jungle. It was most common near the north bay where there is a small sandy beach frequented by turtles. Doubtless here, as elsewhere, the

\* In this list of birds only the distribution within the limits of South-Eastern Asia (India and Ceylon; Indo-China; Malaya and Northern Australia) is given, a more detailed account of the distribution for the few that extend beyond this area being, for our present purpose, unnecessary.

† Having one forenoon crossed the island from the landing-place near the anchorage at the north-east corner to the north bay the writer with his companion (Mr. Kellog, Gunner of the "*Nancowry*") rested for lunch in the shade of the Coconut grove there; while eating we were amused to watch the skinques prospecting for the crumbs that fell aside; after a little—we in the meantime sitting as still as possible—some of the bolder or more confident lizards climbed our legs in search of more. We observed besides that others of them disputed with the hermit-crabs which swarmed there for a share of the ratty portion of some opened coco-nuts that we had thrown aside after drinking the "milk."



eggs of the turtle form one of the staple foods of the *Hydrosaurus*, to the omnivorous propensities of which the writer has already had occasion to allude.† In Barren Island none of these lizards were seen but it is not at all improbable that they are present, for there are two small bays at the south-west corner where there are sandy beaches with a *Pandanus* fence and some Coco-nut trees behind. Owing to the strong swell and heavy surf the writer was unable to land at either of these places, nor did he succeed in crossing the outer cone at a point whence he could reach them from the interior. It is, however, not at all unlikely that turtles visit these sandy patches and, if so, there is no doubt that, if *Hydrosaurus* exists on the island, he will be in evidence there.

CRUSTACEANS :—Besides hermit-crabs, which are very plentiful, there are, at least on Barren Island, land-crabs.\* And, as might be surmised, *Grapsus* is plentiful on the rocks along the coast and is a source of interest to the Blue Reef-Heron and some of the other sea-fowl.

OTHER AIR-BREATHING CREATURES :—The writer did not see a single beetle on Barren Island, but perhaps the season of his visit (March—April) had something to do with their absence. One or two were met with on Narcondam—the specimens obtained including, amongst others, a Golden-Beetle.

Spiders are common on both islands, particularly on Narcondam, where also a scorpion is to be found. It was, however, only seen once, when digging up an *Amorphophallus* tuber, and was not preserved.‡

Ants are very common, the two chief kinds being the common red mango-ant, or a species very like it, both physically and physiologically; and a very small species that makes long powdery tunnels along the outside of, and sometimes also makes its home inside, the stems and branches of various shrubs, *e. g.*, it is common to find it inside living branches of a species of *Leea* and of two species of *Ficus* (*F. brevicuspis* and *F. hispida* var. *daemonum*).

Among insects, besides a sand-fly and a mosquito, whose presence goes without saying, there is a very striking form, only noticed however in Barren Island, in the shape of a small hornet which builds sometimes a discoid nest composed of single cells, mouth downwards, in juxtaposition, and sometimes a long narrow nest of single

\* *Journ. As. Soc. Beng.* vol. lx, pt. 2, p. 402, [footnote].

† Land-crabs were not observed either on Narcondam or on Barren Island, but Mr. Wood Mason has very kindly shown the writer specimens of a land-crab that are preserved in the Indian Museum; these were obtained in Barren Island by Mr. Oldham.

‡ The writer's native collector promptly treated it as vermin, and ere a protest could be uttered had crushed it between two stones.



cells in one or two rows on the under-surface of slender twigs.\* Its sting is very sharp at the time; fortunately the irritation passes off almost completely in half-an-hour or so; unfortunately the nests are very numerous on all the drier slopes where there is any jungle.

Butterflies are not numerous in either island. On Narcondam one species (*Cynthia erota*) is plentiful, and another (*Huphina lichinosa*) is common; the other species are, at least at the season of the writer's visit, but poorly represented. On Barren Island all the species seen are, at that season, particularly scarce. The writer collected on Narcondam a few of most of the kinds seen, and during his visit to Barren Island he had the pleasure of the company of Mr. R. Wimberley, of the Port Blair Commission, whose ardour as a lepidopterist is well-known to his Indian brethren. As Mr. Wimberley came on purpose to collect the butterflies of Barren Island the writer paid but little attention to them; he had hoped that Mr. Wimberley might prepare a note, which could not fail to be highly interesting, on the species he had collected. Mr. Wimberley has not seen his way to do this; he has, however, most obligingly supplied the writer with a list of the species obtained by him; this list is given below *verbatim*. As regards the specimens collected on Narcondam the writer has had the privilege of the kind assistance of Mr. deNicéville, who has most obligingly examined the small collection and named the species.†

#### *List of Butterflies seen on Barren Island.*

(Prepared by Mr. R. Wimberley, Port Blair.)

1. *HYPOLIMNAS BOLINA* Linn. ♂ two.
2. *NACADURA CELESTIS* DeNicév. Several.
3. *CASALIUS* (species, could not tell).

\*To the writer's perhaps prejudiced imagination it appeared that it proferred making its nest on *Capparis sepiaria* to building elsewhere. The arrangement is excellent; an outlying sprawling branch hooks itself unobserved to one's leg or one's arm; the next movement sets the whole bush a-shaking and before one is aware his head and face form the *point d'appui* for a whole army of angry wasplets. The nests, from their shape and situation, are particularly difficult to see, and after forming the firmest resolve to be more wary next time, one only knows that he has blundered into another nest when it is necessary to pick the creatures off his face and from out his hair. So far from trying to obtain specimens our principal object was to keep out of the creature's way.

† While thanking Mr. de Nicéville for his kindness in naming this small collection, the writer would take this opportunity of mentioning that Mr. de Nicéville has also kindly pointed out that the butterfly mentioned in *Jour. As. Soc. Beng.* lix, pt. 2, p. 256, as feeding on *Calotropis gigantea*, and as a recent introduction into the Andamans is not *Danaus genutia*, as there stated, but *Danaus chrysippus*.

4. *ARHOPALA CENTAURUS* Fabr. ♀ one.
5. *HEBOMOLIA ROMPSTORFII* Wood-Mason. Several.
6. *IXIAS ANDAMANA* Moore. Several.
7. *HUPHINA NAMA* Moore. Two or three.

Unfortunately Mr. Wimberley does not say if it is the Andamans race (*coruscans*) of *Arhopala centaurus*, or one of the other local forms, that he obtained.

Besides the species in Mr. Wimberley's list the writer observed two others on Barren Island. One of these was the common "Wandering Snowflake" (*Leptosia xiphia*) which was seen in a gully on the east side of the island on the outer aspect of the outer cone; in the same gully the wings of a bird-eaten example of a very bright *Lycaenid* were picked up. From this it will be seen that our knowledge of Barren Island butterflies is capable of further extension. The same remark applies with perhaps even force to the list of Narcondam butterflies which follows:—

*List of Butterflies seen on Narcondam.*

(Of the species marked (!) specimens have been examined and named by Mr. L. de Nicéville.)

1. *CYNTHIA EROTA* Fabr. !

Several of both sexes caught. This is the commonest butterfly on Narcondam, the male being much more usual than the female though both are "abundant." Mr. Wimberley and the Revd. Mr. Latham-Browne have informed me that though not rare, the species is not "abundant" in South Andaman and that there it frequents damp hollows. In Narcondam it is plentiful everywhere from sea-level up to 800—850 feet elevation.

DISTRIB. N. E. India; Burma; Andamans.

2. *PARTHENOS GAMBRISIUS* Fabr. !

DISTRIB. Eastern Bengal; Indo-China; Andamans; Malay Peninsula.

3. *LAMPIDES ELPIS* Godart. !

One male.

DISTRIB. Himalaya (Sikkim); India; Burma; Andamans; Malaya.

4. *CATOCHESOPS ONEJUS* Fabr. !

One female.

DISTRIB. India; China; Indo-China; Malaya; Andamans and Nicobars; Australia; Polynesia.

5. *LEPTOSIA XIPHIA* Fabr.

One specimen caught on high ground near the north end of the island. Not previously found in the Andamans, though a distinct form (var. *nicobarica* Doherty) occurs in the Nicobars.

DISTRIB. India; Indo-China; Malaya.

6. *HUPHINA LICHINOSA* Moore!

One female; after *Cynthia erota* the commonest butterfly.

DISTRIB. India; Indo-China; Malaya; Andamans.

7. *IXIAS ANDAMANA* Moore.

Seen during our ascent of the peak at about 1,200 feet elevation; no example was obtained.

DISTRIB. Andamans.

By reviewing the distribution of the birds and butterflies (of which two groups, so far as these remarks go, anything precise is known) we may perhaps form some idea of the general relationship of the fauna of these two islands to that of the nearest adjacent lands. For it is extremely probable that, though neither group is completely detailed in its list, these lists nevertheless are representative. And it is equally probable that all the groups of air-breathing creatures will, when thoroughly known, be found to owe their presence here to the agencies that are accountable for the presence of the species enumerated.

The two islands, though spoken of ordinarily as members of the Andaman group, are only to be admitted as such with a very considerable qualification, since in reality they belong to quite a different physio-graphical system from that to which the Andamans proper are to be referred.

The Andamans themselves are, as in well-known, undoubtedly a continuation of the chain of tertiary sandstone hills known as the Yomah of Arracan, the connecting links being Diamond Island off the south coast of Arracan, Preparis Island and the Coco Group, the same system of peaks reappearing with certain limitations and modifications\* in some

\* For example, at the southern end of Great Andaman there are to be found, besides the sandstone about Port Blair which is exactly like that of the Coco Group and of Diamond Island, a different kind of sandstone rock in the "Archipelago" to the north-east of Port Blair and a coralline limestone in the "Sentinels" to the south-west; whether the "Archipelago" sandstone recurs in the Nicobars the writer is unable to say, the "Sentinel" limestone undoubtedly does, e. g., in Battì Malv.

at least of the Nicobar Islands. Beyond the Nicobar group this system is continued southwards, not as is commonly said, (and perhaps generally supposed), into Sumatra, but into the Nias, a chain of islands lying along the west coast of Sumatra.

The two volcanic islands under discussion—as well as a third peak, Flat Rock, which reaches the surface but no more at a point some 50 miles south of Barren Island—are separated from the Andaman chain proper by a strip of sea 90 miles wide and over 1,000 fathoms in depth. In all probability therefore we see in these islands a northward continuation of the chain of volcanoes that stretches upwards from Flores and Sumbawa though the whole length of Java and of Sumatra to Barren Island and Narcondam and perhaps even beyond them to the extinct volcanic peaks of Popah in Upper Burma and of Han-Shuen-Shan in Western Yunnan. But even if this be true there is little doubt that both Barren Island and Narcondam conform essentially to the class of "Oceanic" islands and never have possessed any previous land-connection with neighbouring islands either to the south or to the west, or with continental Asia to the North-east. The present physical conditions in Narcondam appear moreover to be very ancient; there is no trace of a crater at the top of its peak\* which rises 2,330 feet above the level of the Andaman Sea, and the whole island is clad with a dense jungle much richer in species than the forest on Barren Island is. But though the present biological features of Barren Island are of much more modern aspect, is it not necessary to consider that island as really less ancient than Narcondam. The topography of its outer cone, combined with the historical fact of recent activity on the part of the volcano, points to the possibility of some catastrophe similar to that which devastated Krakatau having once happened in Barren Island. And if this has been the case it would follow that the island must have required, even if previously covered with vegetation, to be stocked *de novo* with vegetable and animal life. Still, granting that the present fauna and flora of Barren Island are of more recent introduction than those of Narcondam, the fact remains that we must look upon every species present, even in the island with the older biological features, as an immigrant one.

Dealing first with the birds since these may include both voluntary and involuntary immigrants, we find that of the eighteen species enumerated, the Sea-Eagle, all the sea- and shore-fowl, the three Fruit-Pigeons and the large Corby, making altogether ten species, or 55 per

\* The appearance of the hill indicates however that there never has been a crater.

cent. of the list, are probably deliberate visitants. And though the Sea-Eagle has become a permanent resident and breeds on the spot, perhaps most of the others are still seasonal visitants and nothing more. This is certainly the case with the Fruit-Pigeons, two of which, *Carpophaga bicolor* and *Caloenas nicobarica* come annually from the Nicobars or from Malaya; the third, *Carpophaga aenea*, may come from Malaya or from Indo-China. Equally is this the case with Pond-Heron, which is a visitant from India, and it may be the case with the Sand-Plover and the Sand-Piper which are, in all probability, visitants from the north, and with the Snowy-Tern which is probably a visitant from the south. Perhaps the Blue Reef-Heron, though probably at first a deliberate immigrant, is now, like the Sea-Eagle, a permanent resident.

The Rock-Swiftlet and the Small King-fisher may either have come deliberately or may have been driven by stress of weather to the islands. The former is now certainly, the latter is probably, a permanent resident. The Swiftlet, if driven here involuntarily, must have been an immigrant under the influence of the south-west monsoon, the King-fisher may have reached the island under the influence of either the south-west or the north-east monsoon.

The Water-Hen may also have been driven here involuntarily, but is quite as likely to be a deliberate, though an inadvertent, immigrant. In either case it has probably come from the Andamans, whence also the large Córby has certainly come; the latter has probably, however, not come deliberately but has been driven by stress of weather.

The Paroquet and the Sunbird, the Koe? and the Bulbul are probably all involuntary immigrants, the two former under the influence of the south-west, the two latter under the influence of either monsoon.

The most interesting bird of the list is the Narcondam Hornbill, not merely because it is endemic in that island,—pointing to its arrival there being an event of very considerable antiquity since it has had time to develop peculiarities that appear to entitle it to specific rank, and indicating moreover that the event is one which has recurred very infrequently, if at all—but because, there being no Hornbills in the Andaman group proper, whence birds driven by the south-west monsoon must have been derived, we are led to conclude that it owes its presence in the island to the influence of the usually weaker north-east monsoon.

The probabilities of the case are more compactly indicated in the subjoined table.

*Derivation of the Avifauna of Narcondam and Barren Island.*

SPECIES INTRODUCED	POSSIBLY		CERTAINLY.		PROBABLY.	
	Volunt.	In-volunt.	Volunt.	In-volunt.	Volunt.	In-volunt.
From India or Indo-China	7	.....	4	.....	5	.....
„ Andamans or Malaya	9	.....	5	.....	7	.....
By N.-E. Monsoon ...	.....	4	.....	1	.....	2
„ S.-W. Monsoon ...	.....	7	.....	2	.....	4
Total ...	.....	.....	.....	.....	12	6

18

The butterflies must all of necessity be examples of involuntary immigration, and though not of necessity all immigrants under the influence of winds, have probably in most cases been driven thither by one or other of the monsoons.

Leaving out of account those of Barren Island, two of which have not been specifically identified while a third has not had the particular local race determined, and considering only those of Narcondam, we see that one—*Leptosia riphia*—has of necessity come from the north-east, and one *Ixias andamana*—has of necessity come from the south-west; all the others may have arrived under the influence of either monsoon.

Meagre as our knowledge of the Fauna of these islands is, we seem justified in concluding that the predominance of an Andaman element in it is altogether due to the fact that they are nearer the Andaman Group, from the direction of which a strong monsoon blows for the greater part of each year. At the same time it is clear that the opposite monsoon, though blowing with less force and over a wider sea, is not altogether inactive, but on the contrary must be held accountable for the introduction of certain species which, though they have reached these islands from Indo-China, have not yet succeeded in passing beyond them to the Andaman Group proper. The precise extent of either influence it would however be premature, in the present state of our knowledge, to attempt to assess.

4. *Further materials for a Malayan flora*,—By DR. G. KING, F. R. S. The paper will be published in the Journal, Part II.

5. *The Calcutta (Ochātanati) Factory, first week of its History*.—By THE REV. H. B. HYDE, M. A.

Job Charnock and his party actually began their third and final

occupation of the village of Chatanati on the 24th of August, 1690. This is the true foundation day of the City of Calcutta. There exists at the India Office a series of eleven volumes, extending to 1706 the first of which is entitled "*Diary and Consultation Book for affairs of the Hon'ble English, East India Company, kept by the Rt. Worshipful the Agent and Council beginning 16th July, 1690.*" From this the extracts following are taken. They disclose the state of things with which the Agent and Council had to contend during their first week of settlement.

It will be remembered that after a couple of months occupation of the village in the cold weather of 1686 and 1687, during which the Nawab's Commissioners gave him promises of recognition and support which their master refused to ratify, Charnock attacked the Thana forts, Higili and Balasore. About November of 1687, after some 9 months of this disastrous warfare, Charnock, a second time, attempted a settlement at Chatanati. On this occasion he remained nearly a year and erected some factory buildings. The Company's prospects in Bengal are not wholly unpromising when in September Captain William Heath, the Company's Naval Commander-in-Chief arrived and insisted in carrying off in his ship the whole of the officials of the factory. After a stay at Madras Charnock and the Bengal Council returned on the *Princess* and finally established the Chatanati factory.

The *Diary* above-mentioned records:—"1690, August 23rd. On board the *Maddapollam*." [The party had quitted the *Princess*, perhaps at Balasore, and had embarked on a *Ketch* to ascend the Hugly River.] "Ordered Mr. William Skinner Pylott to leave the *Maddras Friggat* and go on board the *Maddapollam* to help her go to Chutanuttee."

They ascended the River safely as far as Sankral, a village on the west bank of the river just below the present Botanic Gardens, and within sight of the Thana Fort which stood on the site, it is believed, of Dr. King's house and was then held by the Nawab's Government. The *Diary* continues:—

"August, 24th. This day at Sankraul ordered Captain Brooke to come up with his vessel to Chutanuttee where we arrived about noon; but found the place in a deplorable condition, nothing being left for our present accommodation and the rain falling day and night. We are forced to betake ourselves to boats, which considering the season of the year, is very unhealthy. *Mellick Burcoordar* and the country people at our leaving this place burning and carrying away what they could. On our arrival here the Governor of Tanna sent his servant with a compliment."

This *Mullick* had formerly been Governor of Hugly and in January 11th, 1684 had acted as one of the Nawab Shasteh Khan's three Mun-

subdars or Commissioners to treat with Charnock for the establishment of the new factory. The articles were concluded but the Nawab did not confirm them and it was believed the whole negotiation were merely a ruse to secure to the Nawab time for his military preparations against the English. In November, 1687, he was again employed during the second settlement for a similar purpose, this time as sole Commissioner, and, though Captain Heath in his headstrong manner refused to listen to him, professing to believe that the recent death of Mullick's brother in war with the English had incurably prejudiced him against the Company's interests, he was apparently really desirous of adjusting peace. Heath on the 8th of November embarked Charnock and all his Council and subordinates on board his vessels and so abandoned the Chatanati factory buildings to be pillaged by the natives.

Mr. Henry Stanley and Mr. Mackrith had been sent on as Charnock's representatives to occupy Hugly. They arrived there about a fortnight before the latter reached Chatanati. Charnock anticipating that the commonest conveniences of life would be unobtainable on his arrival, wrote to Stanley to ask for supplies to which request Sir Henry Yule preserves a portion of a reply [H. D. ii, 283].

"The necessaries your worship, &c., gave us a note of are such of them as are ready to be had, herewith sent, *viz.*

1 pr. of *Gurras*, 10 as. per pces [thought to be a sort of coarse cotton cloth, *gārhā*].

3 large Dishes of our own stores from Madrass.

2 dozen of Trencher plates belonging to Mr. Croke, such as he sold for  $2\frac{3}{4}$  rupees per *corge* [*i. e.*, per score.]

The rest shall follow".....

On *Thursday, the 28th of August*, the first consultation of the Bengal Council was held at the newly re-established factory, it is worth quoting in full from the *Chatanati Diary*:—

"At a consultation—Present.

The Rt. Worshipful Agent Charnock.

Mr. Francis Ellis.

Mr. Jere[miah] Peachie.

Resolved that a letter be sent to Mr. Stanley, &c., to come from Hugly and bring with them what Englishmen are there that the warr with the French may be proclaimed and also that Commissions be given to all command[ers] of ships in order to the prosecution of the same.

In consideration that all the former buildings here are destroyed, it is resolved that such plans be built as necessity requires and as cheap as possible, *viz.*

1. warehouse.



2. A dining room.
3. The Secretary's Office to be repaired.
4. A room to sort cloth in.
5. A cook-room with its conveniences.
6. An apartment for the Company's servants.
7. The Agent's and Mr. Peachie's house to be repaired which were part standing and a house to be built for Mr. Ellis, the former being totally demolished.

8. The Guard House.

These to be done with mudd walls and thatched till we can get ground whereon to build a factory.

Resolved that 2000 maunds of wheat and 200 maunds horse grain be bought at Manloa [Mandoa?] that being the cheapest place and here to be provided 6000 maunds rice, 200 maunds butter and 200 maunds of oyle (and 200 maunds oyle) [*sic*] to be sent to Fort George.

JOB CHARNOCK.

FRANCIS ELLIS.

JEREMIAH PEACHIE.

J. HILL, *Secretary.*

A few days later under date of *August 31st*, the Agent and Council received the following memorandum—

"Received advices from Mr. Meyerell at Ballasore that Captain Had-dock departed this life the 23rd instant as also that a Portuguese vessel was arrived bringing news of the French Fleets coming to the bay and that the Dutch Commissary is coming with 4 shippes from Negapatam. Governor Pitt with 5 ships from Maddrass also Captain Henth from said place and that 3 Danes Shippes from Trincumbar are ready to joyno with them.

"*September 5th.* All the English according to order being arrived from Hugly, war was proclaimed against the French."

These hostilities against the French were the result of a declaration of war against that nation by King William dated 7th May, 1689, which by His Majesty's accession on the following 9th September, to the Treaty called "The grand alliance" implied a general attack on French trading interests throughout the world. The Dutch and Danish vessels mentioned in the foregoing memorandum were coming to support the British in their attack upon the French Indiamen.

So began a desultory naval warfare which lasted in Indian waters for several years.

The Chatanati Diary thus exhibits to us Charnock and his Council of 2, his few factors and his 30 soldiers passing the first week of what proved to be their final and successful attempt to found the factory

which has become the City of Calcutta, under most deplorable circumstances.

They could not live ashore because of the excessive rain and because of their former mud-built houses only three were even partly standing; therefore they made the best of it in sloops and country boats, in addition to this they expected to be engaged in immediate war with the French.

It would seem that many months passed before they materially bettered their condition for from two extracts from the Fort St. George letters preserved by Sir Henry Yule, (which he says convey the whole information he had been able to collect respecting the first year or two of this establishment of Charnock's.) We learn that so late as May of the next year, 1691.

"They (in Bengal) could dispose of little [merchandize] nor have they safe goedowns to secure them from damage, and the truth is they live in a wild unsettled condition at Chuttinutec, neither fortified houses nor goedowns, only tents, hutts and boats, with the strange charge of near 100 soldiers, guardship, &c."

This "guardship" suggests that they had not succeeded in erecting the projected guardhouse, and was apparently a "great portuguez frigott" purchased by Charnock for the purpose. [Hedge's Diary ii, pp. 87 and 88]. It is probable that the Mahomedan Government wholly prohibited the erection of anything like a defensible building by the English in the Chatanati village.

6. *On the Flora of the Black Mountain.*—By SURGEON CAPTAIN WESTHROP-WHITE, I. M. S., communicated by the *Natural History Secretary*.

The paper will be published in the Journal, Part II.

## LIBRARY.

The following additions have been made to the Library since the meeting held in March last.

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ROYAL GARDENS, KEW.

Catalogue of Scientific Papers compiled by the Royal Society of London  
(1874-1883). Vol. IX, A-B-Gis. 4to. London, 1891.

ROYAL SOCIETY OF LONDON.

### PERIODICALS PURCHASED.

Allahabad. Indian Notes and Queries,—Vol. I, No. 12.

Berlin. Deutsche Literaturzeitung,—Jahrgang XII, Nrn. 48-52; XIII,  
1-5.

———. Orientalische Bibliographie, Band V, Heft 4.

———. Zeitschrift für Ethnologie,—Heft 5, 1891.

Calcutta. Calcutta Review,—Vol. XCIV, No. 188.

———. Indian Medical Gazette,—Vol. XXVII No. 3.

Cassel. Botanisches Centralblatt,—Band XLVIII, Heft 6-13; XLIX,  
1-3.

Geneva. Archives des Sciences Physiques et Naturelles,—Tome  
XXVII, No. 2.

Göttingen. Der Königl. Gesellschaft der Wissenschaften,—Göttin-  
gische Gelehrte Anzeigen, Nrn. 22-26, 1891.

———. Nachrichten, Nrn. 8-9, 1891.

Leipzig. Annalen der Physik und Chemie,—Band XLV, Heft 2.

———. Beiblätter, Band XVI, Stück 2.

Leyden. Internationales Archiv für Ethnographie,—Band IV, Heft 6.

London. The Annals and Magazine of Natural History,—Vol. IX  
(6th Series), Nos. 49 and 50.

———. The Chemical News,—Vol. LXV, Nos. 1682-86,

———. The Entomologist,—Vol. XXV, Nos. 344 and 345.

———. The Entomologist's Monthly Magazine,—Vol. III (2nd Series),  
Nos. 25 and 26.

———. The Ibis,—Vol. IV (6th Series), No. 13.

———. The Journal of Botany,—Vol. XXIX, No. 348; XXX, 349.

———. The Messenger of Mathematics,—Vol. XXI, Nos. 8 and 9.

———. The Quarterly Journal of Microscopical Science,—Vol.  
XXXIII, Parts 1 and 2.

———. The Quarterly Journal of pure and applied Mathematics,—  
Vol. XXV, No. 100.

- London. *Rhopalocera Exotica*, Part 19.
- New Haven. *The American Journal of Science*,—Vol XLII (3<sup>rd</sup> Series), No. 252; XLIII, 253.
- Paris. L' Académie des Sciences,—*Comptes Rendus des Séances*, Tome CXIII, Nos 21-26; CXIV, Nos. 1-5, et Tables Tome CXII.
- . *Annales de Chimie et de Physique*,—Tome XXIV (6<sup>me</sup> Série), Décembre 1891; XXV, Janvier et Février, 1892.
- . *Revue Critique d' Histoire et de Littérature*—Tome XXXII, Nos. 48-52; XXXIII, 1-5,
- . *Revue Scientifique*,—Tome XLIX, Nos. 8-12.
- Philadelphia. *Manual of Conchology*,—Vol. XII, Part 5; VI (2<sup>nd</sup> Series), Part 5.
- Vienna. *Vienna Oriental Journal*,—Vol. V, No. 4.

### BOOKS PURCHASED.

- MÜLLER, F. MAX. *The Sacred Books of the East*, Vol. XXXII. *Vedic Hymns*, translated by F. Max Müller. Part I. 8vo. Oxford, 1891.
- . Vols. XXXIX and XL. *The Sacred Books of China*, the texts of Taoism, translated by James Legge. Parts I and II. 8vo. Oxford, 1891.
- REHATSEK, E. *The Rauzat-us-Safa*, Vol. II, Part I. Edited by F. F. Arbuthnot, M. R. A. S. (Oriental Translation Fund, New Series, I) 8vo. London, 1892.
- Report on the Scientific Results of the Voyage of H. M. S. "Chal-lenger" during the years 1873-76. Deep-Sea Deposit. 4to. London, 1891.
- ROSCOE, SIR H. E. AND SCHORLEMMER, C. *A Treatise on Chemistry. Organic Chemistry*, Vol. III, Part 6. 8vo. London, 1892.

PROCEEDINGS  
OF THE  
ASIATIC SOCIETY OF BENGAL,  
FOR MAY, 1892.

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The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 4th May, 1892, at 9-15 P. M.

C. H. Tawney, Esq., C. I. E., in the Chair.

The following members were present:—

Nawab Abdul Latif Khan Bahadur, G. A. Grierson, Esq., T. H. Holland, Esq., Rev. H. B. Hyde, Kumār Ramenwār Maliāh, L. de Nicéville, Esq., J. D. Nimmo, Esq., H. M. Rustomjee, Esq., E. Thurston, Esq., Dr. J. H. Tull Walsh, C. R. Wilson, Esq.

Visitor:—H. W. Sparkes, Esq.

The minutes of the last meeting were read and confirmed.

Sixteen presentations were announced, details of which are given in the Library List appended.

The following gentlemen, duly proposed and seconded at the last meeting of the Society, were ballotted for and elected Ordinary Members:—

Hon'ble Sir C. A. Elliott, K. C. S. I., C. I. E.

G. W. Forrest, Esq., B. A.

Lieutenant W. A. Harrison, R. E.

Colonel T. H. Haldich, R. E.

The SECRETARY announced that Raja Oday Pertab Sing, Raja of Bhinga, had compounded his subscription as a non-resident member by the payment in a single sum of Rs. 300.



The following papers were read:—

1. *Rajah Káns*,—By H. BEVERIDGE, Esq., C. S.

The paper will be published in the Journal, Part I.

2. *An account of an old inscription found at Burtrá in the district of Márwár*,—By MUNSHI DEBIPERSHAD OF JODHPORE. Communicated by the Philological Secretary.

(Abstract).

Burtrá is a village situated nearly 20 miles east of Jhálor in Márwár. Here, under a tree, a stone was found about 1 foot 6 inches square, bearing an inscription in the Nágari character. The villagers, believing that the stone marked the position of some hidden treasure, for a long time preserved it with great care, till they learnt the purport of the writing. From this it appears that the stone belonged to a well which was built by Rúpádevi, a daughter of Chácha, the Rájá of Jhálor, and was consecrated by her, in the reign of her brother Sámyanta Siñha, on Monday, the 7th Jyaishtha, Samvat 1340. It also appears from the inscription that Rúpádevi was married to Tejas Siñha, and had a son called Kshetra Siñha.

The stone is evidently a monument of the Chauhan Rájás of Jhálor, who belonged to the Sonágira clan. It gives the following names:—

- (1). Samara Siñha.
- (2). Udaya Siñha.
- (3). His son Chácha.
- (4). His son Sámyanta Siñha.

The founder of this dynasty, Ketu, gained possession of the fort of Jhálor in Samvat 1218. The name of the hill on which the fort was built was Sonágiri, whence the family of Ketu were called Sonágiras.

The son of Ketu was Samara Siñha, from whom Udaya Siñha was descended. According to Firishtah, Shams-ud-Din Altamsh attacked Udaya Siñha in Samvat 1268 for not paying tribute, and reduced him to obedience.

Chácha, the son of Udaya Siñha, in Samvat 1319 built a temple to the goddess Chámundá, which was situated in a pleasant valley in Jaswant-pura, a district of Márwár. Sámyanta was Chácha's son. The inscription belongs to his reign.

Rájá Kanardeo, the son of Sámyanta Siñha, fought bravely for many years with Alá-ud-din Khilji, who attacked him in the fort of Jhálor, but in Samvat 1368 the fort was taken, and Kanardeo was killed with his son Virándeo. Maldeo, the brother of Kanardeo, who escaped, submitted to Alá-ud-din, and was made Killádár of Chitter, as we learn from the Ain-i-Akbari.

There are still to be found in Márwár and Mewár many Sonágira Chauháns who are descended from Maldeo.

• 3. *Noviciæ Indicæ*, V. *An undescribed Mezoneuron from the Andaman Group*,—By D. PRIN, ESQ., M. B.

• The paper will be published in the Journal, Part II.

## LIBRARY.

The following additions have been made to the Library since the meeting held in April last.

## TRANSACTIONS, PROCEEDINGS AND JOURNALS,

*presented by the respective Societies and Editors.*

Baltimore. Johns Hopkins University,—Circulars, Vol. XI, No. 96.

Berlin. Der Koniglichen Akademie der Wissenschaften zu Berlin,—

Sitzungsberichte, XLI to LIII, und Inhalt, Jahrg. 1891.

Bombay. Bombay Natural History Society,—Journal, Vol. VI, No. 4.

Brussels. La Société\* Royale des Sciences de Liège,—Mémoires,  
Tome XVII.

Calcutta. Geological Survey of India,—Records, Vol. XXV, Part 1,  
1892.

———. Indian Engineering,—Vol. XI, Nos. 15–18.

———. Photographic Society of India,—Journal, Vol. V, No. 5.

Dresden. Gesellschaft Iris zu Dresden,—Deutsche Entomologische  
Zeitschrift,—Band IV, Heft 2.

Florence. La Società Italiana di Antropologia, Etnologia and Psico-  
logia Comparata,—Archivio per L' Antropologia e la Etnologia,  
Vol. XXI, Fasc. 2.

Frankfurt, a O. Des Naturwissenschaftlichen Vereins des Reg-Bez

Frankfurt,—Helios, Jahrgang IX, Nrn. 7–10.

———. Societatum Litterae,—Jahrg. V, Nos. 9–12.

The Hague. Koninklijk Instituut voor de Taal-, Land- en Volkenkunde  
van Nederlandsch-Indië,—Bijdragen tot de Taal- Land- en Volken-  
kunde van Nederlandsch-Indië, Volgreeks V, Deel VII, Aflever-  
ing 2.

- Havre.** Société de Géographie Commerciale du Havre,—Annuaire, Janvier, 1892.
- Jassy.** Societății Științifice Și Literare din Iași,—Arhiva, Vol. III., Nos. 1-3.
- London.** Anthropological Institute of Great Britain and Ireland,—Journal, Vol. XXI., No. 3.
- . Nature,—Vol. XLV., Nos. 1169-72.
- . Royal Asiatic Society of Great Britain and Ireland,—Journal, Vols. XXI, Part 4; XXII, 1-4; and, XXIII, 1-4.
- . Royal Astronomical Society,—Monthly Notices, Vol. LII, No. 4.
- . Royal Geographical Society,—Proceedings, Vol. XIV, No. 3.
- . Royal Microscopical Society,—Journal, Part 1, 1892.
- . Royal Society,—Proceedings, Vol. L, No. 305.
- . The Academy,—Nos. 1037-40.
- . The Athenæum,—Nos. 3360-64.
- . The Institution of Electrical Engineers,—Journal, Vol. XXI, No. 96, and Contents and Index to Vol. XX.
- . ————. List of Officers. Corrected to 31st January 1892.
- Mexico.** La Sociedad Científica "Antonio Alzate,"—Memorias, Tome V, Nos. 3 et 4.
- Munich.** Der K. B. Akademie der Wissenschaften,—Abhandlungen, Historischen-classe, Band XIX, Abth 3.
- . ————. Philosophisch—Philologischen classe, Band XIX, Abth 2.
- . ————. Sitzungsberichte, Mathematisch—physikalischen classe, Heften I und II, 1891.
- . ————. philosophisch—philologischen und historischen classe, Band II, Heft III; Heft I und II 1891.
- Mussorie.** The Indian Forester,—Vol. XVIII, No. 4.
- Naples.** La Società Africana D' Italia,—Bollettino, Anno XI, Fasc. 1 et 2.
- Paris.** La Société de Géographie,—Comptes Rendus des Séances, Nos. 5 et 6, 1892.
- . La Société Zoologique de France,—Bulletin, Tome IV, No. 5; XVII, 1-2.
- . Revue Géographique Internationale,—Vol. XVI, No. 194; XVII, 195.
- St. Petersburg.** L'Académie Impériale des Sciences de St. Pétersbourg,—Mémoires. Tome XXXVIII, Nos. 4-6.
- Taiping.** Perak Government,—Perak Government Gazette, Vol. V, Nos. 7-9.

Turin. La R. Accademia delle Scienze di Torino,—Atti, Vol. XXVII, Disp. 3-4.

Yokohama. Der Deutschen Gesellschaft für Natur- und Völkerkunde.  
• Ostasiens in Tokio,—Mittheilungen, Band V, 47 Heft.

Yokohama. Asiatic Society of Japan,—Transactions, Vol. XIX, Parts  
• 2 and 3.

Zagreb. Hrvatskoga Arkeologikoga Druzstva,—Viestnik, Godina  
XIV, Br. 2.

## BOOKS AND PAMPHLETS

*presented by the Authors, Translators, &c.*

RĀY, PRATAPA CHANDRA. The Mahabharata, translated into English  
Prose, Part LXXII, Çanti Parva. 8vo. Calcutta, 1891.

TIESENHAUSEN, B. Nonvacantes Numismatiques. 8vo.

## MISCELLANEOUS PRESENTATIONS.

Riezler, Sigmund. Gedächtnisrede auf Wilhelm von Giesebrecht. 4to.  
München, 1891.

AKADEMIE DER WISSENSCHAFTEN ZU MÜNCHEN.

Catalogue of Arabic Glass Weights in the British Museum. By S.  
Lane-Poole. 4to. London, 1891.

Catalogue of the Birds in the British Museum, Vol. XX. By T. Salva-  
dori. 8vo. London, 1891.

Catalogue of the Cuneiform Tablets in the Kouyunjik Collection of the  
British Museum, Vol. II. By C. Bezold. 4to. London, 1891.,

BRITISH MUSEUM, LONDON.

Report on the Lunatic Asylums of the Central Provinces for the year  
1891. 8vo. Nagpur, 1892.

CHIEF COMMISSIONER, CENTRAL PROVINCES.

BLANFORD, W. T. Fauna of British India, including Ceylon and Burma.  
Mammalia. Part II. 8vo. London, 1891.

EGGELING, Julius. Catalogue of the Sanskrit Manuscripts in the Library  
of the India Office. Part III. 8vo. London, 1891.

GOVERNMENT OF BENGAL.

Indian Antiquary, Vol. XXI, Part 258. 4to. Bombay, 1892.

GOVERNMENT OF INDIA, HOME DEPARTMENT.

Monthly Weather Review, August, 1891. 4to. Calcutta, 1892.

Original Meteorological Observations, August 1891. 4to. Calcutta, 1892.

METEOROLOGICAL REPORTER TO THE GOVERNMENT OF INDIA.

Results of the Meteorological Observations made at the Government  
Observatory, Madras, during the years 1861-90. 4to. Madras, 1892.

GOVERNMENT OF MADRAS.

RICE, B. Lewis. *Bhaṭṭakalaṅka Dēva's Karpāṭaka—Saddānuśāsanam*, 4to. Bangalore, 1890.

DIRECTOR OF ARCHÆOLOGICAL RESEARCHES IN MYSORE.  
Observations faites à l' Observatoire Météorologique de l' Université de  
Kiew. Janvier, 1892. 8vo.

L' UNIVERSITE' DE KIEW.  
HOUTSMA, Th. Recueil de Textes Relatifs à L' Histoire Des Seldjoudides,  
Vol. III, Partie I. 8vo. Leide, 1891.

L' UNIVERSITE' DE LEIDE.

### PERIODICALS PURCHASED.

Allahabad. North Indian Notes and Queries,—Vol. II., No. 1.

Berlin. Deutsche Literaturzeitung,—Jahrgang XIII, Nrn. 6-11.

Calcutta. Indian Medical Gazette,—Vol. XXVII, No. 4, and, Supplement.

Cassel. Botanisches Centralblatt,—Band XLIX, Heft 4-11.

Geneva. Archives des Sciences Physiques et Naturelles,—Tome XXVII, No. 3.

Göttingen. Der Königl. Gesellschaft der Wissenschaften,—Götttingische Gelehrte Anzeigen, Nrn. 2-5, 1892.

———. ———. Nachrichten. Nrn. 10 und 11, 1891; und, 1-3, 1892.

Leipzig. Annalen der Physik und Chemie,—Band XLV, Heft 3.

———. ———. Beiblätter, Band XVI, Stück 3.

Leyden. Internationales Archiv-für Ethnographie,—Band V, Heft I.

London. The Annals and Magazine of Natural History,—Vol. IX, No. 51.

———. The Chemical News,—Vol. LXV, Nos. 1687-89.

———. The Entomologist.—Vol. XXV, No. 346.

———. The Entomologist's Monthly Magazine,—Vol. III (2<sup>nd</sup> Series.), No. 27.

———. The Journal of Botany,—Vol. XXX, Nos. 350 and 351.

———. The London, Edinburgh and Dublin Philosophical Magazine,—Vol. XXXIII, No. 202.

———. The Quarterly Journal of Microscopical Science,—Vol. XXXIII, Part 3.

New Haven. The American Journal of Science,—Vol. XLIII (3<sup>rd</sup> Series), Nos. 254 and 255.

Paris. L' Académie des Sciences,—Comptes Rendus des Séances,—Tome CXIV, Nos. 6-11.

———. Annales de Chimie et de Physique,—Tome XXV (6<sup>me</sup> Série), Mars 1892.

Paris. *Revue Scientifique*,—Tome XLIX, Nos. 13-15.

——. *Revue Critique d' Histoire et de Littérature*,—Tome XVII, Nos. 6-12.

Philadelphia. *Manual of Conchology*,—Vols. VII (2<sup>nd</sup> Series), Parts 1 and 3; XII, 6; XIII, 1.

### BOOKS PURCHASED.

DISTANT, W. L. *A Naturalist in the Transvaal*. 8vo. London, 1892.

FAUSBOLL, V. *The Jātaka*. Vol. V. 8vo. London, 1891.

Report of the sixty-first Meeting of the British Association for the Advancement of Science held at Cardiff in August, 1891. 8vo. London, 1892.

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PROCEEDINGS  
OF THE  
ASIATIC SOCIETY OF BENGAL,  
FOR JUNE & JULY, 1892.

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The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 6th July, 1892, at 9-15 P. M.

A. PEDLER, Esq., F. C. S., Vice-President, in the chair.

The following members were present :—

Dr. A. Alcock, H. K. W. Arnold, Esq., Bábu P. N. Bose, Bábu Man Mohan Chakravartí, G. W. Forrest, Esq., Bábu Bhupendra Sri Ghosha, Bábu Pratápa Chandra Ghosha, G. A. Grierson, Esq., A. Hogg, Esq., The Rev. H. B. Hyde, Bábu Asutosh Mukhopádhyáya, Bábu Nilmani Mukerjee, Pandit Mahámahopádhyáya Mahesachandra Nyáyaratna, L. de Nicéville, Esq., R. D. Oldham, Esq., Dr. D. Prain, Hon. Dr. Mahendralál Sarkar, Pandit Haraprasád Sástri, Dr. W. J. Simpson, Dr. J. H. Tull Walsh, Colonel J. Waterhouse, C. R. Wilson, Esq., J. Wood-Mason, Esq.

Visitor :—Bábu Mahendra Nath Roy.

The Council reported that no meeting was held in May, as a quorum of members was not present.

Seventy presentations were announced, details of which are given in the Library List appended.

The following gentlemen are candidates for election at the next meeting :—

Pandit Behary Lall Chakraborty, proposed by Dr. A. F. R. Hoernle, seconded by G. A. Grierson, Esq.

Lieutenant Donald Baker, proposed by C. R. Wilson, Esq., seconded by Colonel J. Waterhouse.



H. H. The Maharaja Pratap Narain Singh of Ajodhya, proposed by C. R. Wilson, Esq., seconded by C. H. Tawney, Esq.

Samuel Charles Hill, Esq., Bengal Educational Service, proposed by J. Crawford, Esq., seconded by Colonel J. Waterhouse.

Bábu Asutosh Pramanick, Merchant, proposed by Bábu Pratápa-chandra Ghosha, seconded by Pandit Haraprasád Sástri.

The Rev. Henry Whitehead, M. A., Principal, Bishop's College, proposed by The Rev. H. B. Hyde, seconded by C. R. Wilson, Esq.

The following gentleman has expressed a wish to withdraw from the Society :—

Dr. Aghore Chunder Chatterjee.

The Secretary reported the death of the following member :—

A. V. Nursing Row, Esq., F. R. A. S.

The Chairman reported that The Hon. Sir C. A. Elliott, Lieutenant-Governor of Bengal, was willing to accept the office of President.

The Secretary read a circular from the Royal Society of New South Wales, enumerating prizes to be given for original researches on certain subjects connected with Australia.

The following papers were read :—

1. *Some new inscriptions of Bhuvaneśvar, District Puri*.—By BÁBU MAN MOHAN CHAKRAVARTI, M. A., B. L., *Subordinate Executive Service of Bengal*.

(Abstract).

This paper gave an account of several new stone inscriptions, found at Bhuvaneśvar, in the district of Puri, Bengal.

The inscriptions were 9 in number, viz. (A) one on the Paraśurám-eśvar temple, (B) one on the Vaitala Deul, (C) seven on the Bara Deul, or great tower of Bhuvaneśvar.

(A) The first named temple was lying in a delapidated condition. From its general shape, its scroll-work, its carvings of men, animals, birds and plants, it could not be put later than the tenth century. Its porch had three entrances. Immediately over the entrance from the south were four lines in early Kuṭiḷa characters, of which the purport appeared to be that by order of the lord of Sri-Kaliṅga, offerings were made by one Vedácharya (probably a royal officer or *purohita*) to Páraseśvar Bhaṭṭaka, a Pāṇḍin. Apparently Bhuvaneśvar, and probably Orissa, was then under the rule of Kaliṅga kings.

(B) On the outside of the north-wall of the porch of the Vaitál Deul were four lines in Sanskrit character, the first two being the well-known couplet written by copyists of Sanskrit manuscripts at the end of

their copies, to the effect that the letters should be "equal in size, even-headed, thick, and with spaces between."

Besides these four lines there were several single letters, perhaps mason's letters, and at one place in Uriya character कश्मिपति नजपति or the lord of Káśi, the lord of elephants."

- (C) The Bara Deul inscriptions were discovered by Bábu M. M. Chakravarti on the inside of the projecting walls of the porch, four being on the south side, and three on the north. With the exception of the lowermost one on the north side, the inscriptions belonged to the reigns of three Orissan kings, Aniyañka Bhíma Deva, Anañga Bhíma Deva, and Narasiñha Deva.

The inscriptions recorded gifts to the temple, usually for the purpose of lighting lamps.

The first inscription on the south side belonged to Narasiñha Deva IV, and was dated, "Friday, the Sukla *ekādśi* of the month Makar in the fourth *añka* of the flourishing reign of Anika Bhíma Deva." This, according to Bábu M. M. Chakravarti's calculations, was equivalent to Friday, 14th January, 1166 A. D., which would also agree with other inscriptions of Narasiñha Deva IV, discovered by Bábu M. M. Chakravarti. The second inscription on the north side was dated "Tuesday, the Kṛṣṇa *pratipada* of the month Dhanu, in Śakábdá 1140," which was equivalent to Tuesday, 4th December, 1218 A. D.

In conclusion, the author of the paper, invited the attention of scholars to the rich mine of antiquities that still remained to be explored in and round Bhuvaneśvar. These very inscriptions if carefully transcribed either by patient comparison on the spot, or from faithful ink impressions, would probably throw much light on the mediæval kings of Orissa. In spite of the researches of Stirling, Prinsep, Hunter and Rájendralála Mitra, the history of Orissa was very obscure. The *Mádalá Pánji* was still its main basis and the *Mádalá Pánji* was a very unsafe and confusing guide, being itself based on unsatisfactory, imperfectly recorded, and often contradictory traditions. The work should be deposed from the high pedestal which it now occupied, and placed in its proper rank, as a corroborative document only.

2. *Is Mailapur the ancient Manipur of the Mahabharata?*—By S. T. KRISHNAMACHARYA, Esq., Attorney-at-law. Communicated by THE PHILOLOGICAL SECRETARY.

3. *The Korkus.*—By W. H. P. DRIVER, Esq.

The papers will be published in the Journal, Part I.

4. *A note on the Parganas of Murshidabad.*—By H. BEVERIDGE, Esq., C. S.

In Akbar's reign, Bengal Proper was divided into 19 Sarkárs

containing 682 estates or parganas. This arrangement was made about the year 1582, and is commonly ascribed to Rajah Todar Mal. Lists of the contents of the Sarkárs are given in the *Ain*, and Mr. Blochmann made much use of them when he was elucidating the old geography of Bengal. Unfortunately there are many errors in the MSS. of the *Ain*. Sometimes these can be corrected by referring to the lists in Tieffenthaler, but more effectual help is afforded by Grant's analysis in the Fifth Report, and by local knowledge. Grant's lists are those of Jaffar Khan's arrangement of 1722, but he also supplies the names of the old Sarkárs.

The object of this note is to compare the lists in the *Ain* with those in the Statistical Account of Bengal. I only do this for Moorshidabad, and I would suggest that similar comparisons be instituted for other districts. In this way the lists might appear in a correct form in the forthcoming translation of the second volume of the *Ain*.

The present district of Murshidabad is mainly comprised in Todar Mal's Sarkár of Tándah, *alias* Audambar, *alias* Audner. This Sarkár extended southwards from Agmahal, *i. e.*, Rajmahal and included parganas both in the Rarh and the Bagri, that is, on both sides of the Bhágirathi, as far south as Chunakhali, or a little to the south of the town of Murshidabad. The rest of the Rarh was included in Sarkár Sharifabad. The remainder of the district, *i. e.*, the portion lying south and east of Chunakhali seems to have been included in Sarkárs Mahmudabad and Bárbakábád. The pargana of Plassey in the extreme south and which perhaps now wholly belongs to Nadia was included in Sarkár Sâtgaón according to Grant. I cannot find it in the *Ain*, unless it is the Belkasi which is there entered as included in Mahmudabad. Belkasi is not very like Plassey, but in Tieffenthaler the name appears as Bellessi.

On comparing the lists in the *Ain*, pp. 394-408 with that in the Statistical Account of Bengal, IX, 232-36, I find the following correspondences :—

#### I. SARKÁR TANDAH, *Ain*, p. 394.

- |                  |                   |
|------------------|-------------------|
| 1. Ashraf Bhág.  | 11. Kásipur.      |
| 2. Buitáli.      | 12. Kátgárh.      |
| 3. Chang Nadiya. | 13. Kumar Pratáp. |
| 4. Chunakháli.   | 14. Mangalpur.    |
| 5. Daudsháhi.    | 15. Nasibpur.     |
| 6. Dháwa.        | 16. Nawa Nagar.   |
| 7. Diwánapur.    | 17. Samas Khani.  |
| 8. Gankar.       | 18. Swarupsingh.  |

- |                |                  |
|----------------|------------------|
| 9. Ibrahimpur. | 19. Sultanuzial. |
| 10. Kankjol.   |                  |

II. SARKÁR SHARÍFABAD, *Áin*, p. 406.

- |                      |                   |
|----------------------|-------------------|
| 1. Akbarshahi.       | 6. Fathsingh.     |
| 2. Bárbacksingh.     | 7. Husainuzial.   |
| 3. Bazar Ibrahimpur. | 8. Khargaon.      |
| 4. Bhátsála.         | 9. Mahalandi.     |
| 5. Bihrol.           | 10. Manaharsháhi. |

III. SARKÁR MAHMUDÁBÁD, *Áin*, p. 397.

- |                      |               |
|----------------------|---------------|
| 1. Fathipur Nausika. | 3. Kntubpur.  |
| 2. Kulberia.         | 4. Pátkabúri. |

IV. SARKÁR BÁRBÁKÁBÁD, *Áin*, p. 403.

- |               |                |
|---------------|----------------|
| 1. Bárbakpur. | 3. Guzarhát.   |
| 2. Gowás.     | 4. Iaskharpur. |

I do not think that these lists are at all complete, nor will it be found that the spellings of the *Áin* and of the Statistical Account exactly agree. Indeed one of my objects is to show that they do not, and that the text of the *Áin* wants revision. Thus Chunakháli is disguised in the *Áin* under the name of Jonaghattí, and the old and extensive parganas of Gowás and Gankar appear there as Kahas and Gankarah. Some well-known parganas do not appear at all in the *Áin*. For example, Ghiásábád, which Grant places, no doubt correctly, in Sharifabad, is not mentioned in the *Áin*. Under Sarkár Mahmudabad, we find Babhangola and Barmapur. Can these be Bhagwángola and Berhampur?

The name Sharifabad for the Sarkár comprising the Rañh is interesting for it suggests the family of Husain Shah, the famous king of Gaur. An ancestor of his is said to have been Sharif of Mecca, and his father's name was Ashraf. Perhaps the latter gave his name to the pargana of Ashraf Bhág. In the *Áin* this pargana appears under the name of Darsan Ashrafnahal, and in Tieffenthaler as Darsan Ashrafbhál.

I ought to mention that I have been assisted in making my lists by a valuable map in Col. Gastrell's report on Murshidabad, in which the principal parganas are shown.

If we had similar maps of other districts, or even with the aid of the pargana maps in the Survey Office, a map might be made of the 19 Sarkárs which would show the divisions of Bengal in 1582. Another might be made showing the Sarkárs of Orissa and Assam. A third map might be made showing Jaffar Khan's 13 Chaklas corresponding to the 34 Sarkárs of Todar Mal.\* No doubt the labour would be con-

siderable, and it would be necessary to make many local inquiries in order that the names of the parganas might be correctly given. But they would be valuable historical documents. Perhaps Mr. Beames, who has already done something for the geography of the Akbarnáma, might undertake the task.

5. *Note on the Topography of the river in the 16th century from the Húgli to the Sea as represented in the Da Asia of De Barros*.—By C. R. WILSON, Esq., M. A.

The paper will be published in the Journal, Part I.

6. *Note on three North Indian Butterflies*—*Euthalia nara*, *E. sahadeva*, and *E. anyte*. By LIONEL DE NICEVILLE, F. E. S., C. M. Z. S.

*Euthalia nara*, Moore, *E. sahadeva*, Moore, and *E. anyte*, Hewitson, have always proved to be puzzling species both to collectors and cabinet naturalists. *E. nara* was described from a female, *E. sahadeva* from a male, and *E. anyte* also from a male. All three species occur in Sikkim. That region has been so thoroughly well worked entomologically of recent years that it is inconceivable that the opposite sexes of three such large butterflies should be still uncaptured, and, on looking over the material at my disposal in consequence of the receipt of a letter from Mr. H. J. Elwes, suggesting that *E. sahadeva* is the male and *E. nara*\* the female of one species, I find that I can discriminate the opposite sexes of all the three species with ease. The short diagnoses given below will, I think, enable any one having specimens of these species to distinguish between them without difficulty. In "The Butterflies of India" I described as the supposed male of *E. nara*, a specimen which now proves to be the true female of *E. nara*; what I, at the time of writing, took to be *E. nara* female turns out to be the true female of *E. sahadeva*. It is strange that Mr. Elwes should have omitted *E. anyte* from his "Catalogue of the Lepidoptera of Sikkim," as it has been recorded from thence more than once. In the Proc. Zool. Soc. Lond., 1891, p. 279, Mr. Elwes describes the supposed female of *E. anyte*.\* I am unable to follow his description, nor can I agree with his conclusions, as I contend that *E. nara* and *E. anyte* are female and male respectively of one and the same species, which stands under the former name. *Euthalia iva*, Moore, described as a male from Darjeeling, is probably a female, and has still to be re-discovered.

\* Since this article was put into type I have heard again from Mr. Elwes, and he tells me that the specimens which he took to be the females of *E. nara* are really the opposite sex of *E. sahadeva*.

## 1. EUTHALIA NARA, Moore.

*Adolias nara*, Moore, Trans. Ent. Soc. Lond., new series, vol. v, p. 78, n. 35, pl. viii, fig. 1, female (1859); id., Butler, Proc. Zool. Soc. Lond., 1868, p. 602, n. 17; *Euthalia nara*, de Nicéville, Butt. of India, vol. ii, p. 197, n. 493 (1886); id., Elwes, Trans. Ent. Soc. Lond., 1888, p. 357, n. 175; *Adolias anyte*, Hewitson, Ex. Butt., vol. iii, *Adolias* pl. ii, fig. 5, male (1862); id., Butler, Proc. Zool. Soc. Lond., 1868, p. 603, n. 23; *Euthalia anyte*, de Nicéville, Butt. of India, vol. ii, p. 198, n. 494 (1886); id., Elwes, Proc. Zool. Soc. Lond., 1891, n. 279.

HABITAT: *E. nara*:—Unknown (Moore and Butler); Sikkim; N. Khasi Hills (de Nicéville); Sikkim; Buxa, Bhutan, July and August; Khasia, 4,500 ft., September (Elwes); *E. anyte*:—East India (Hewitson and Butler); Sikkim; Nepal (de Nicéville); Sikkim; Bhutan; Naga Hills (Elwes).

The female of *E. nara* may be known from that sex of *E. sahadeva* by its smaller size; by its more golden (less greenish) bronzy colour on the upperside; by the posterior spot of the discal white band in the first median interspace of the forewing being very narrow and therefore appearing to be more elongated; and on the underside of both wings being more greenish (less golden) bronzy; and in the hindwing "in the submarginal small black spots" present in the true female of *E. sahadeva* "being replaced by a diffused line darker than the ground-colour," this line being characteristic of the male of *E. nara* (*E. anyte*), while both sexes of *E. sahadeva* have a series of rounded black dots on the underside of the hindwing, one in each interspace except the submedian, which has two; these dots, moreover, being further removed from the outer margin than the diffused line is in both sexes of *E. nara*.

In Colonel A. M. Lang's collection a female of this species from Sikkim is correctly named.

## 2. EUTHALIA SAHADEVA, Moore.

*Adolias sahadeva*, Moore, Trans. Ent. Soc. Lond., new series, vol. v, p. 80, n. 39, pl. viii, fig. 3, male (1859); id., Butler, Proc. Zool. Soc. Lond., 1868, p. 601, n. 11; *Euthalia sahadeva*, de Nicéville, Butt. of India, vol. ii, p. 199, n. 495 (1886); id., Elwes, Trans. Ent. Soc. Lond., 1888, p. 357, n. 176; *E. nara*, var., id., Proc. Zool. Soc. Lond., 1891, p. 278.

HABITAT: Unknown (Moore); Nepal (Butler); Nepal; Sikkim; Assam (de Nicéville); Sikkim (Elwes); *E. nara*, var.:—Naga Hills (Elwes).

FEMALE (hitherto underscribed). EXPANSE: 3·9 to 4·1 inches. Differs from the female of *E. nara*, Moore, in its larger size. UPPERSIDE, forewing with the posterior spot of the discal band, broad, twice as broad as in *E. nara*. UNDERSIDE, hindwing with a series of small round submarginal black spots, one in each interspace except the submedian, which has

two. In the female of *E. nara* these spots are replaced by a continuous diffused line of a darker shade of colour than the ground, which, moreover, is placed considerably nearer the outer margin than is the series of black spots in *E. sahadeva*. The shape of the hindwing in both sexes, is also characteristic, in *E. sahadeva* it is much more square, therefore broader, and less regularly rounded than in *E. nara*.

*E. confucius*, Westwood, was described from China from a female specimen. Under this name are two specimens of what I consider to be the true female of *E. sahadeva* in Colonel A. M. Lang's collection, probably named by Mr. Moore; the latter probably also recording this species from Darjeeling in Proc. Zool. Soc. Lond., 1865; p. 767, under the name of *E. confucius*. The female is figured by Messrs. H. Grose Smith and W. F. Kirby in "Rhopalocera Exotica," pt. xvii, pl. *Euthalia* iii, figs. 1, 2 (1891), and differs from the same sex of *E. sahadeva* in having the discal band of the forewing much wider, and the spots on both wings yellow ("stramineous"), instead of white as in *E. sahadeva*. The male is said to be very similar to the female. It is an abundantly distinct species.

### LIBRARY.

The following additions have been made to the Library since the meeting held in May last.

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*presented by the respective Societies and Editors.*

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————. Royal Geographical Society,—Proceedings, Vol. XIV, Nos. 4 and 5.

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## MISCELLANEOUS PRESENTATIONS.

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8vo. Washington, 1890.

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*Report of the Third Meeting of the Australasian Association for the Advancement of Science held at Christchurch, New Zealand, in January, 1891.* 8vo. Sydney, 1891. •

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*Notes on the Annual Statements of the Government Charitable Dispensaries in the Central Provinces for the year 1891.* Fcp. Nagpur, 1892.

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*Administration Report on the Jails of Bengal for the year 1891.* Fcp. Calcutta, 1892.

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GOVERNMENT OF BENGAL.

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Productions of which will be charged to the Army, Navy, and Indian  
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the Commencement of the Half-year ended on the 30th September,  
1892. Fep. London, 1892.

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scriptions at the ruined Buddhist Stūpa at Bhattiprolu. Fep. Mad-  
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Erben, Josef. Annuaire Statistique de la ville capitale de Prague et des communes-faubourgs Karlin (Karolinenthal), Smichov, Vinohrady (Weinberge) et Zizkov pour 1889. 8vo. Prague, 1891.

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*Address delivered at the Funeral Service of President Noah Porter, March 7th, 1892*. 8vo. New Haven, 1892.

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————. *The London, Edinburgh and Dublin Philosophical Magazine*,—Vol. XXXIII, No. 204.

- . The Messenger of Mathematics,—Vol. XXI, No. 10.
- . The Numismatic Chronicle, Vol. XI (3<sup>rd</sup> Series), Nos. 43 and 44.
- . The Quarterly Journal of pure and applied Mathematics,—Vol. XXVI, No 101.
- . Rhopalocera Exotica,—Part XX.
- New Haven. The American Journal of Science,—Vol. XLIII (3<sup>rd</sup> Series), No. 256.
- Paris. L' Academie des Sciences,—Comptes Rendus des Séances,—Tome CXIV, Nos. 12–17; et Tables Tome CXIII.
- . Annales de Chimie et de Physique,—6<sup>me</sup> série, Tome XXV et XXVI, Avril et Mai 1892.
- . Revue Critique d' Histoire et de Littérature,—Tome XXXIII, Nos. 13–17.
- . Revue Scientifique,—Tome XLIX, Nos. 17–25.



PROCEEDINGS  
OF THE  
ASIATIC SOCIETY OF BENGAL,  
FOR AUGUST, 1892.



The Monthly General Meeting of the Asiatic Society of Bengal was held on Wednesday, the 3rd August, 1892, at 9-15 p. m.

HON'BLE SIR C. A. ELLIOTT, K. C. S. I., C. I. E.,

President, in the Chair.

The following members were present :—

Nawab Abdul Latif Khan Bahadur, H. K. W. Arnold, Esq., Bábu Gaurdás Bysack, G. W. Forrest, Esq., Babu Pratápa Chandra Ghosha, G. A. Grierson, Esq., F. G. Hickson, Esq., T. H. Holland, Esq., The Rev. H. B. Hyde, C. Little, Esq., R. D. Mehta, Esq., J. D. Nimmo, Esq., A. Pedler, Esq., Dr. D. Prain, Hon. H. H. Risley, Pandit Hara-prasád Shástri, Dr. W. J. Simpson, C. R. Wilson, Esq.

Visitors :—The Rev. K. E. Barrow, A. C. Elliott, Esq., C. J. L'Estrange, Esq., C. W. Odling, Esq.

The minutes of the last meeting were read and confirmed.

Forty-three presentations were announced, details of which are given in the Library List appended.

The following gentlemen, duly proposed and seconded at the last meeting of the Society, were ballotted for and elected Ordinary Members :—

Pandit Behary Lall Chaube.

Lieutenant Donald Baker.

H. H. The Maharaja Pratap Naráin Singh.

Samuel Charles Hill, Esq.

Bábu Asutosh Paramanick.

The Rev. Henry Whitehead.



The following gentlemen are candidates for election at the next meeting :—

Bábu Narsingh Dutt, Howrah, proposed by G. A. Grierson, Esq., seconded by C. R. Wilson, Esq.

R. Greevan, Esq., C. S., proposed by C. H. Tawney, Esq., seconded by C. R. Wilson, Esq.

The following gentlemen have expressed a wish to withdraw from the Society :—

A. M. Markham, Esq., C. S.

The Rev. Walter A. Hamilton.

The Hon. H. H. Risley brought forward a motion to revive the Ethnological Committee and the appointment of an Ethnological Secretary who should be in charge of a new part of the Journal.

It was unanimously resolved that a third section dealing with Anthropology, Ethnography and Folklore be added to the Journal and that the Council be authorized to enter into negotiations with the Government of Bengal in order to obtain a grant in connection therewith.

Mr. C. R. Wilson read a short note on an old picture of the riverside in the north part of Calcutta in 1788.

*Note on an old Picture of the Riverside in the north part of Calcutta in 1788.*

This picture is one of a set of nine pictures of old Calcutta in the possession of the Asiatic Society of Bengal. There is also a very large copy of it at Belvedere. The date is 1788. It obviously represents a house, temple, and bathing ghats, in the northern part of Calcutta. There is the steeple of a church in the distance. The difficulty is to determine the precise spot. I have spent a good deal of time in the attempt to do this. Remembering that the present Strand was once covered with water I have walked up and down the northern part of it, and have examined all the buildings which lie to the east of the roadway. I have thus discovered the temple and all that remains of the buildings seen in the picture.

The most conspicuous object in the picture is a large three-storied house built by the waterside and behind it a smaller two-storied house. The three-storied building, was in 1788, the Thakur Bari of Babu Jugul Kisore Addy, and the two-storied building was his house of residence. Babu Jugul Kisore had bought the land from a Madrassee called Naina Pá and built the Thakur Bari upon it. At his death the property came to his son Nanda Lal Addy who only survived his father a few years. The

next owner of the property was Nanda's son Doyal Chand Addy, who was in his day a distinguished resident of Calcutta. He was a great rider and kept a large stud of horses. I find his name in October 1806 as one of the signatories of an address to Sir Henry Russel then Chief Justice of Bengal. Doyal Chand died in 1835. His son Babu Raj Ballub Addy is still living and is an old man of 72. It is to him and to Babu Gaurdás Bysack that I am indebted for my information about this old Calcutta family. The three-storied Thakur Bari is not now in existence. It is shown in Simms' Survey of Calcutta in 1849, but it has since been pulled down, and the site sold and covered with huts and sheds. The two-storied house is still standing in Dharmahatta Street at the corner of Darpa Naraian Tagore's Street. The house is much altered, but I have been all over it, and I am convinced that it is the same house as that shown in the picture.

The little temple is also still standing, but is almost hidden away from sight by a large shed belonging to Messrs. Ralli Bros. built close up beside it and behind it. It is a temple of Siva and belongs to a Biswas family.

The picture shows at least two ghats. I am a little uncertain as to their names. The one adjacent to the temple and immediately north of it was called the Rám Sítá Ghat; the other to the south of this, according to the maps of Wood and Upjohn, was called Hurreenant Dewan's Ghat in 1785-95, but from some valuable maps which have been kindly lent me by Babu Gaurdás Bysack it appears that in 1830 the Rám Sítá Ghat had disappeared and that the second ghat was called the Seebtolah Ghat. This name, however, is given by Wood and Upjohn to another ghat further north of this spot which seems also to have disappeared by 1830. There were therefore in 1788 three ghats near this place—the Seebtolah Ghat, the Ram Sita Ghat and Hurreenant Dewan's Ghat. The first two were subsequently done away with, and the name Seebtolah was transferred to the third ghat.

The spire in the distance belongs to the Armenian Church. The warehouses along the river side south of Jogul Kisore Addy's Thakur Bari have mostly disappeared, many of them having been pulled down to make room for the Mint.

The following papers were read :—

1. *Notes on the old plans of Forts and Towns of the East India Company preserved by the French at Pondicherry*,—By G. W. FORREST, Esq., B. A.

2. *Note on the date of Nur Qutb Alam's death*,—By H. BEVERIDGE, Esq., C. S.

The papers will be published in the Journal, Part I.

3. *Note on the Indian and Malay Peninsula Butterflies comprised in the subgenus Stictoploea of the genus Euploea*.—By LIONEL DE NICÉVILLE, Esq., F. E. S., C. M. Z. S.

I recently received the following pathetic letter from the Rev. Walter A. Hamilton :—" I am to-day sending you by parcel-post a box containing 500 specimens of *Euploea* from the Khasi Hills. Will you kindly sort and name them for me? I have had to give it up, having nearly worn my eyes out in trying to discriminate between the various described species, the differences between which appear to be minute." The collection on examination consisted practically of two species, and as Mr. Hamilton was good enough to say I might keep any I required, I sorted them very carefully, and picked out specimens of all such as appeared to be in any way abnormal. I propose to deal in this Note with the *Stictoploea*s. In Part VII of Mr. Moore's "*Lepidoptera Indica*" six species are given from Sikkim, Assam, and Burma. I give below a key to these species which graphically brings out the points on which Mr. Moore relies in separating them.

**Key to certain Indian species of the subgenus STICTOPLŒA.**

- A. Upperside, forewing with numerous spots on the disc in addition to the submarginal and marginal series.
  - a. Of large size; upperside, hindwing with complete submarginal and marginal series of spots.
    - E. (*STICTOPLŒA*) *HOPEI*, Assam.
  - b. Of small size; upperside, hindwing in the male (as described) with three submarginal spots only, (six marginal spots figured); female with additional marginal spots.
    - E. (*STICTOPLŒA*) *PYGMÆA*, Assam.
  - c. Of large size; upperside, hindwing with three or two submarginal spots.
    - E. (*STICTOPLŒA*) *BINOTATA*, Sikkim.
- B. Upperside, forewing with no spots on the disc, submarginal and marginal series of spots as in A.
  - a. Upperside, hindwing with complete submarginal and marginal series of spots.
    - E. (*STICTOPLŒA*) *HARRISI*, Burma.
  - b. Upperside, hindwing with three submarginal spots.
    - E. (*STICTOPLŒA*) *CROWLEYI*, Burma.
  - c. Upperside, hindwing immaculate.
    - E. (*STICTOPLŒA*) *REGINA*, Assam.

In the work above referred to Mr. Moore does not record *E. harrisi* from the Malay Peninsula, though he previously\* gave Malacca and Cochin China amongst other places as its habitat. Mr. Butler also in his original description of *S. binotata* records it from Borneo as well as

\* Proc. Zool. Soc. Lond., 1883, p. 320, n. 4.

from India. Mr. Moore in his Monograph of the *Euplaeina* does not record it from Borneo, but describes from thence *S. tyrianthina*. There is something mysterious about the latter species. Having originally\* described it from Borneo and Sumatra, Mr. Moore, in Lep. Ind., p. 138, records it from Sumatra only. In the original description it is said to be similar to *S. harrisii* on the upperside of the forewing, i. e., richly glossed with blue. But in Lep. Ind. it is said to be "without the blue gloss." Again, in Captain Shopland's List of the Butterflies collected by him in Aracan, Burma, p. 4, *E. tyrianthina* is recorded. I am almost certain that there is no *Stictoplaea* in any part of India that is not blue-glossed, and as Captain Shopland most probably named his specimens at the British Museum, and as none but blue-glossed species occur in India, I think Mr. Moore must be mistaken in saying that the species is not blue-glossed. As originally described Mr. Moore placed it between two blue-glossed species (*S. harrisii* and *S. pygmaea*), and all the indications would go to show that it is a blue-glossed species, in which case it is probably another synonym of *E. harrisii*.

*E. pygmaea* may, I think, be dismissed at once, as it is obviously only a stunted form of *E. binotata*. I possess from the Khasi Hills an even smaller specimen than the type, with which it agrees in markings. The two commonest forms in the Khasi Hills are *E. binotata* and *E. regina*, but the other three described species also occur there, but less commonly. Every gradation exists between the most heavily-marked *E. hopei* on the one side and the most sparsely-marked *E. regina* on the other, as represented in these Khasi Hill specimens, and I can come to no other conclusion than that we have here to deal with a single protean species which must stand as *E. (Stictoplaea) harrisii*, Felder. Although this single species has been split up into six by three different entomologists (Moore having described three, Felder two, and Butler one), this by no means exhausts the number of species which might be created on similar lines, as there is hardly any combination in the different arrangement of the discal spots of the forewing and the marginal and submarginal spots of both wings which might not be met with were sufficient material available; at any rate, in the nearly one hundred set specimens and two hundred unset ones now before me as I write, there are numerous individual specimens which are quite as distinct as any hitherto described. And the species is obviously variable throughout its range, though in the Khasi Hills of Assam, where it appears to be commonest, these variations are the most numerous, and comprise the extreme north-westerly (Sikkim) form which seems to always possess the discal spots on the

upperside of the forewing, and the southerly (Burma and Malay Peninsula) form in which these spots are invariably absent, but in which there is usually (not invariably) a prominent submarginal and marginal series of spots on the hindwing which are not usually found in the north-westerly form.

I give below a brief description of the species as I think it should be known, together with its synonymy in full. In the latter I include the *Stictoploea microsticta* of Butler, described without locality, as it is a form which appears to occur commonly in the Khasi Hills. Mr. Moore says it is a broader-winged insect in both wings than *E. hopei*, but as will be found stated below, even the shape of the wings in this species is inconstant.

### EUPLOEA (STICTOPLŒA) HARRISII, Felder.

*Euploea harrisii*, Felder, Reise Novara, Lep., vol. ii, p. 328, n. 451, male (1865); *Stictoploea harrisii*, Moore, Journ. Linn. Soc. Lond., Zoology, vol. xxi, p. 31 (1886); *E. (Stictoploea) harrisii*, Elwes and de Nicéville, Journ. A. S. B., vol. iv, pt. 2, p. 416, n. 13 (1886); *Stictoploea harrisii*, Moore, Proc. Zool. Soc. Lond., 1883, p. 320, n. 4, pl. xxx, fig. 8, male; idem, id., Lep. Ind., vol. i, p. 136, pl. lii, figs. 1, male; 1a, female (1890); *E. harrisii*, Distant, Rhop. Malay., p. 411, n. 17 (1886); *Euploea grotai* (female only), Felder, l. c., p. 339, n. 470, pl. xli, fig. 7, female (1865); id., Butler, Trans. Linn. Soc. Lond., Zoology, second series, vol. i, p. 535, n. 3 (1877); id., Distant, l. c., p. 36, n. 17, pl. iii, fig. 3, male (1882); id., Marshall and de Nicéville, Butt. Ind., vol. i, p. 91, n. 77 (1882); id., Watson, Journ. Bomb. Nat. Hist. Soc., vol. iii, p. 19, n. 22 (1888); id., Adamson, Cat. of Butt. collected in Burma, p. 6, n. 33 (1889); idem, id., Notes on *Danainæ* of Burma, p. 14 (1889); *Stictoploea grotai*, Butler, Journ. Linn. Soc. Lond., Zoology, vol. xiv, p. 302, n. 4 (1878); id., Moore, Proc. Zool. Soc. Lond., 1878, p. 824; *Euploea hopei*, Felder, l. c., p. 328, n. 452, male (1865); id., Marshall and de Nicéville, l. c., p. 92, n. 78, pl. ix, fig. 18, male and female (1882); id., Watson, Journ. Bomb. Nat. Hist. Soc., vol. iii, p. 19, n. 23 (1888); id., Adamson, Cat. of Butt. collected in Burma, p. 6, n. 34 (1889); idem, id., Notes on *Danainæ* of Burma, p. 14 (1889); id., Manders, Trans. Ent. Soc. Lond., 1890, p. 617, n. 10; *Stictoploea hopei*, Butler, Journ. Linn. Soc. Lond., Zoology, vol. xiv, p. 302, n. 5 (1878); id., Moore, Proc. Zool. Soc. Lond., 1883, p. 319, n. 1; idem, id., Lep. Ind., vol. i, p. 138, pl. liii, figs. 1, male; 1a, female (1890); *E. (Stictoploea) hopei*, de Nicéville, Journ. A. S. B., vol. ii, pt. 2, p. 65, n. 133 (1882); id., Elwes, Trans. Ent. Soc. Lond., 1888, p. 302, n. 16; *Stictoploea microsticta*, Butler, Journ. Linn. Soc. Lond., Zoology, vol. xiv, p. 302, n. 6 (1878); id., Moore, Proc. Zool. Soc. Lond., 1883, p. 320, n. 7; *Euploea microsticta*, Marshall and de Nicéville, l. c., p. 94, n. 80 (1882); *Stictoploea binotata*, Butler, Journ. Linn. Soc. Lond., vol. xiv, p. 302, n. 7 (1878); id., Moore, Proc. Zool. Soc. Lond., 1883, p. 319, n. 2, pl. xxx, fig. 4, male; idem, id., Lep. Ind., vol. i, p. 138, pl. liii, figs. 2, male; 2a, female (1890); *E. (Stictoploea) binotata*, Wood-Mason and de Nicéville, Journ. A. S. B., vol. iv, pt. 2, p. 347, n. 18 (1886); *E. binotata*, Watson, Journ. Bomb. Nat. Hist. Soc., vol. vi, p. 33, n. 14 (1891); *Stictoploea regina*, Moore, Proc. Zool. Soc. Lond., 1883, p. 319, n. 3; idem, id., Lep. Ind., vol. i, p. 140, pl. liii, fig. 3, male (1890); *S. pygmaea*, id., Proc. Zool. Soc. Lond., 1883, p. 320, n. 6; idem, id., Lep. Ind., vol. i, p. 139, pl. lii, figs. 3, male; 3a, female (1890); *S. crowleyi*, id., Lep. Ind., vol. i, p. 139, pl. lii, fig. 2, male (1890).

**HABITAT:** Sikkim, Bhutan, Assam, Burma, Malay Peninsula, Cochin-China.

**EXPANSE:** ♂, 2·8 to 4·2; ♀, 3·4 to 4·2 inches.

**DESCRIPTION: MALE.** UPPERSIDE, *forewing* glossed with magnificent blue throughout; two prominent black impressed elongated sexual brands in the submedian interspace placed one above the other, the anterior rather the shorter; marginal blue dots varying from none to nine, when present invariably commencing at the anal angle and never reaching the apex of the wing; a submarginal series of larger spots varying from five to eight, and shewing great variation in size; an angulated series of discal spots placed beyond the discoidal cell, varying from none to five, also very variable in size; a spot at the outer posterior end of the cell and another on the costa between the origin of the first and second subcostal nervules, both sometimes present, sometimes absent. *Hindwing* rich dark piceous, becoming lighter towards the costa, the latter broadly cinereous; marginal white dots none in some specimens, to a complete series of twelve in others; a submarginal larger series varying from nine to ten, very inconstant in size, when present always commencing from the apex of the wing; sometimes with, sometimes without two discal bluish-white spots divided by the third median nervule beyond the discoidal cell. **UNDER-SIDE**, *both wings* rich dark piceous; some white dots at the extreme base of the wings; the markings as above, but invariably much smaller, white, or bluish-white, as variable as on the upperside; sometimes with, sometimes without a spot at the end of each discoidal cell. *Forewing* with the inner margin broadly cinereous. **FEMALE** differs from the male in the inner margin of the forewing being straight instead of strongly outwardly bowed, and in the absence of the sexual brands on the upperside, which are represented in some specimens by a small blue streak; all the markings on both sides in both wings as variable as in the male. **UNDERSIDE**, *forewing* with two elongated bluish-white streaks in the submedian interspace. This latter marking is very useful, and by it a female *Stictoploea* can be at once identified, as it occurs in no other group of *Euploea*.

The shape of the forewing in this species shows considerable variation, some specimens being much broader than others, while the apex of the wing is also somewhat produced in some examples, much rounded in others.

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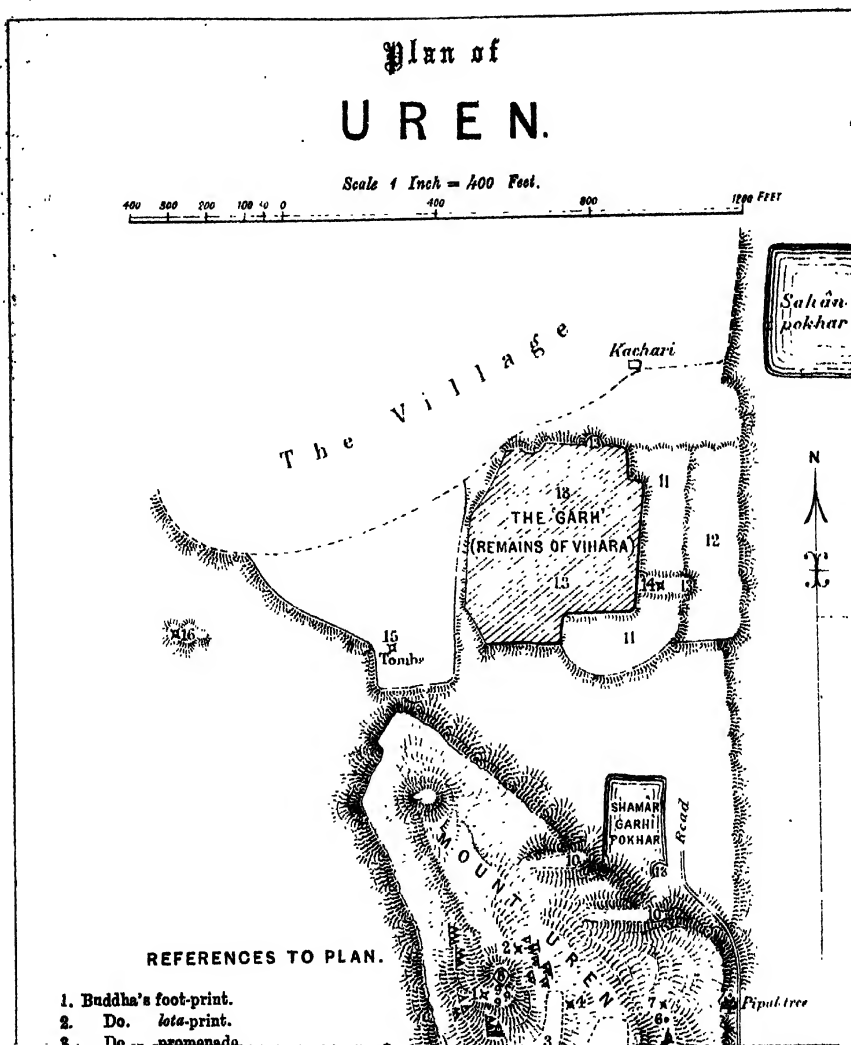
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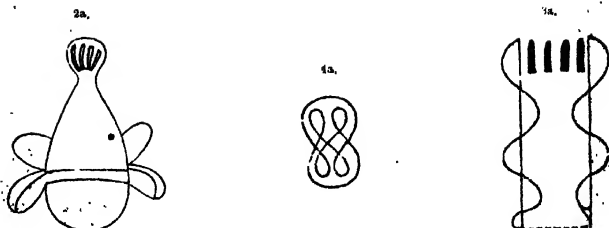




L. A. Waddell, Del.

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THE LOTA-MARK CHAITYA FIGURES (from short-cuts).



REFERENCES

1. LOTA circumference.
2. LOTA profile with leafy vine and attached rope with fingers grasping. 2a. Larger view of same.
3. KAMANDALU Pitcher with attached rope and fingers grasping. 3a. Larger view of same.
4. Coiled Drawing-rope.
5. Pyramid of Moa'ke, offerings on raised tray.
6. SANKHA, or Conch shell, trumpet on stand.





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BUDDHA'S PROMENADE.

X = site of diamond & sapphire pits.





No. 2.



No. 1



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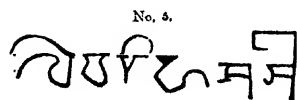
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No. 4

1 & 2. Cuneiform Inscriptions  
from Statue Base.

3. Kuthia Inscription.



No. 5.

4. Rock cut inscription to East of Buddha's Footprint (1/2 actual size).

5. Rock cut inscription to North of Buddha's Footprint (1/2 actual size)



# JOURNAL

OF THE

## ASIATIC SOCIETY OF BENGAL.



Part I.—HISTORY, LITERATURE, &c.

No. I.—1892.

*Discovery of Buddhist Remains at Mount Uren in Mungir (Monghyr) district, and Identification of the site with a celebrated Hermitage of Buddha.*—By L. A. WADDELL, M. B.

(With four Plates).

Seldom is it possible to identify an ancient site so perfectly as that now reported; for it seldom happens that the historical description is so very detailed, the geographical position so well defined, and the remains themselves so little disturbed as in the present case. And in addition to the discovery of the hermitage where Buddha spent the rainy season (the so-called 'Buddhist Lent') of the sixteenth year of his ministry, it is interesting and important to find that a famous incident in the legendary life of Buddha, which occurred here and which has hitherto been considered a solar myth, is in fact an almost unembellished record of a local event. Evidence is also offered of the forcible expulsion hence of Buddhism by the Muhammadan invaders, in opposition to the opinion expressed by many writers that Buddhism died out of India through its own inherent decay.

\* *Discovery of site.*—The antiquities at the village of Uren have quite escaped the notice of archaeologists. On passing through the village some months ago, I observed numerous fragments of Buddhist statues scattered everywhere around, and was so led to explore the locality during the limited time at my disposal, with the result of discovering that the hill adjoining the village is one on which Buddha rested a season,



during the rains, and a celebrated place of pilgrimage in olden times, very fully described by the Buddhist pilgrim Hiuen Tsiang\* in the seventh century A. D.

*Remains being destroyed by quarriers.*—It is a pity that the site has remained so long undiscovered, for the unfortunate proximity of the hill to the railway, and the excellent quality of the rock (granite) have induced the railway authorities to use the hill as a quarry for 'road-metal'; and only about six years ago two of the most interesting of the rock-sculptures were in this way demolished and the fragments further broken up and carried off as ballast; and the blasting operations have now extended to within a few feet of the more important rock-sculptures and markings still remaining. Many of the inscribed statues also have been carried off from time to time by the overseers or contractors supervising the quarrying operations—one of these in particular, a Mr. S—is reported to have carried off, about thirty-six years ago, a full cart-load of the best preserved statuettes, the ultimate destination of which cannot now be traced. Sufficient evidence, however, still exists to place the identification of the site beyond all dispute, and I am glad to have been the means of rescuing these ancient remains, more especially the rock-markings, from imminent destruction.†

*Hiuen Tsiang's description of the site.*—The I-lan-na-po-fa-to (*Hiranyaparvata*) country of Hiuen Tsiang is held by the recognized authorities Julien,‡ Fergusson§ and Sir A. Cunningham|| to have coincided approximately with the hilly portion (*i. e.*, the eastern half) of the modern district of Mungir (Monghyr) in the province of Bihár, with its capital at the site of the present town of Monghyr. In describing this country, Hiuen Tsiang writes:—¶

"On the western frontier of the country (I-lan-na-po-fa-to), to the

\* *Si-yu-ki*, Buddhist Records of the Western World, translated from the Chinese of Hiuen Tsiang by S. BEAL, Vol. II, pp. 190-91, London, 1884.

† Since writing the above I have again visited the site and find that further quarrying operations have been extensively carried on since the submission of this report to the Society. The western cliff, bearing numerous chaitya figures, has been in great part removed by blasting, only the fractured bases of a few of the chaityas still remaining. Also at the south-east margin of the hill, where the rock was highly polished and contained ancient markings, most of this surface has been removed by blasting. And a blast had been put in within two yards of Buddha's footprint, but had miscarried in explosion. All this destruction has occurred subsequent to my report to the Society.

‡ *Mémoires sur les Contées Occidentales*, traduits du Chinois, Paris, 1853.

§ *Jour. Roy. As. Soc.*, Vol. VI, p. 230.

|| *Ancient Geography of India*, p. 476; and *Arch. Survey of India Reports*, Vol. XV, p. 16.

¶ BEAL, *loc. cit.*, Vol. II, p. 190.

"south of the river Ganges, we come to a small solitary mountain with "a double peak rising high (Beal here notes 'The passage might be translated "there is a small solitary hill with successive crags heaped up.") "Formerly Buddha in this place rested during the three months "of rain, and subdued the Yaksha Vakula (Yo-c'ha Po-khu-lo). Below "a corner of the south-east of the mountain is a great stone. On this "are marks caused by Buddha sitting thereon. The marks are about "an inch deep, five feet two inches long, and two feet one inch wide. "Above them is built a *stūpa*. Again to the south is the impression "on a stone where Buddha set down his *kuin-chi-kia* (*kundika* or water-vessel). In depth the lines are about an inch, and are like a flower "with eight buds (*or* petals). Not far to the south-east of this spot "are the foot-traces of the Yaksha Vakula. They are about one foot "five or six inches long, seven or eight inches wide, and in depth less "than two inches. Behind these traces of the Yaksha is a stone figure "of Buddha in sitting posture, about six or seven feet high. Next, to "the west, not far off, is a place where Buddha walked for exercise. "Above this mountain top is the old residence of the Yaksha. Next, "to the north is a foot-trace of Buddha, a foot and eight inches long "and perhaps six inches wide and half an inch deep. Above it is a *stūpa* "erected. Formerly when Buddha subdued the Yaksha, he commanded "him not to kill men nor eat their flesh. Having respectfully received the law of Buddha, he was born in heaven. To the west of this "are six or seven hot springs. The water is exceedingly hot."

*General Cunningham's identification with Mahādeva hill.*—So very detailed a description of this site ought to render its identification comparatively easy and certain; and it seems remarkable that guided by such a minute description the identification should have been so long delayed. It may be that this is partly owing to Sir A. Cunningham having already in his official report\* identified the Mahādeva peak in the Kharakpur hills with the site just described by Hiuen Tsiang. But it had so happened that about two months previous to my visiting Uren, I had occasion to be in the neighbourhood of the Mahādeva hill referred to by General Cunningham, and I took advantage of the opportunity to visit the hill, book in hand—with the pilgrim's account and General Cunningham's remarks side by side for reference on the spot. And I confess to being thoroughly disappointed. In this case certainly the remarks applied by Fergusson to another identification of General Cunningham's are again fully applicable, *viz.*, that after arbitrarily altering the direction given by his author, he fails in every instance to "bring

"the natural features of the country into accord with the descriptions of the pilgrim."

*Mahádeva hill certainly not the site.*—That the Mahádeva hill is certainly not the site referred to by the pilgrim is evident from the following facts :—

1st. It is *not* "on the western frontier," but rather on the eastern frontier of I-lan-na-po-fa-to.

2nd. It is *not* "a small solitary hill," but is within and among the hills and not a detached hill; it is only a lower shoulder of a higher hill of the range behind.

3rd. It has *not* "a double peak rising high"—the 2nd peak really belongs to another hill of the range.

4th. It has *no* "successive crags heaped up"—on the contrary its sides are trim and sub-conical.

5th. It has *not* "to the west not far off" any place suitable for a promenade

6th. It has *none* of the very numerous rock-markings described by Hiuen Tsiang (so far as is known, and special inquiry and search for these were made).

th. It has *no* remains of the several *stúpas* erected on the site.

9th. The hot springs are *not* "to the west" of the hill, but actually upon the hill itself and on its eastern and N. E. slope.

9th. Lastly it has *no* Buddhist remains, nor remains of any kind (except a small brick shrine about 4 feet square housing a linga [Mahádeva], nor is there any history or likelihood of there ever having been remains hereabouts; and the situation is so remote from rail and roadways and villages, that had any buildings or remains ever existed here, it is scarcely possible that every trace of them could have been swept away.\*

*Mt. Uren fully satisfies description in every detail.*—Finding thus that the Mahádeva peak was certainly not the place referred to by the pilgrim, I was, at the time I stumbled on the Uren ruins, on the outlook for a site which would be more in harmony with the pilgrim's account; and that Mt. Uren fully satisfies the pilgrim's description, even to the minutest detail, will be abundantly evident from the following particulars :—

*Situation of Mount Uren.*—Mount Uren is situated in the Mungir dis-

\* The *Páñch Kumár* figure referred to by Genl. CUNNINGHAM was found about five miles from here and is only a five-faced 'linga' (phallus).

trict and on the Western frontier of the I-lan-na-po-to (*Hiranya-parvata*) country, formerly included in the ancient kingdom of Magadha, and within the Buddhist Holy Land. It is about twenty miles distant from the town of Mungir in a S. W. direction, and about seven miles south of the present course of the Ganges, but in the rains the Ganges flood reaches almost up to Uren. In the Survey map the name is spelt "Oorein," but the local pronunciation and spelling of the name is *Uren*.

*Local traditions.*—Tradition is singularly meagre both in regard to the hill itself, and the ruins and remains at its base. The only story which is current amongst the villagers is, that the hill was formerly the abode of a demon or deified giant called Lorik, famous in the nursery tales of Bihár. And to this Lorik were ascribed the known markings on the hill, *viz.*, the *lofá*-mark, the two footprints, and that portion of the hill called 'the house.' The existence of Buddha's footprint and the numerous inscriptions on the summit of the hill, and a footprint and inscriptions at the S. E. base were, however, unknown to the villagers, until I pointed them out.

*Conformation of Hill identical with Hinen Tsiang's description.*—Of the hill itself no more concise description could be given than that contained in Beal's translation,\* *viz.*, "a small solitary hill with successive crags heaped up." The hill is also "a small solitary mountain† with a double peak rising high." In appearance, therefore, the hill literally satisfies both the original and alternative descriptions. The hill is bare and devoid of vegetation, except in a few chinks in the rock where a scanty soil and debris have accumulated. Its black naked rocks, rising in a rugged series of crags abruptly from the plain, give it a most weird appearance. The rock consists of granite of a pale bluish colour on fracture, and its surface, where unpolished, becomes covered over with a black lichen. The hill is isolated and solitary, being distant about two miles from the mass of the Mungir hills, here consisting of what Buchanan calls 'silicious hornstone'‡, and separated from these by a stretch of plain, now under rice cultivation. The height of the hill seems to be about 250 feet above the surrounding plain. The shape of the hill is seen in the accompanying sketch-map (see Plate I), which also indicates the position of the remains and rock-markings. The southern peak is the higher and forms the true summit of the hill.

\* *Loc. cit.*

† One of the translations gives 'mountain' instead of hill, but BEALE shows that the word also means 'hill,' and there are no mountains in this part of India.

‡ *Eastern India*, II, 166. It is commonly known as quartzite.

*The numerous remains noted by Hiuen Tsiang identified seriatim.*—In identifying *seriatim* the remains noted by Hiuen Tsiang, it is convenient to describe these in a slightly different order to that given by the pilgrim, as at least two of the rock "traces" have lately been removed, respectively five and six years ago.

*The residence of the Yaksha.*—1st, "Above this mountain top is the old residence of the Yaksha (*Vakula*)."<sup>\*</sup> This to the present day is one of the sights of the hill. The villagers call it *Lorik ká ghar* or 'the house of Lorik the giant' (i. e., Yaksha). It is a somewhat flat area on the top of the hill, below the S. E. side of the summit, and is surrounded on three sides by vaguely columnar rock, slightly suggestive of rude walls.

*The local survival of the name of the Yaksha, viz., Bakula.*—In regard to the name of the Yaksha, viz., *Vakula*,<sup>\*</sup> which in modern Hindí becomes *Bakula*, it is remarkable to find the local survival of this name and the awe in which it is still held. Immediately behind Uren is the mouth of a pass which leads into the wild Singhol hills; and the pass and the hills beyond were the retreat of banditti till long after the Muhammadan invasion. The older banditti are popularly alleged by the villagers to have been cannibals, and their raids are still spoken of by the lowlanders here with dread. These highland aborigines were formerly called *rakshas* or 'demons' by the plains-people; and the oldest settlement of those *raksha* or *yaksha* tribes is about five miles beyond the mouth of the pass, and is called *Bakura*—which is identical with the name of the 'yaksha' given by Hiuen Tsiang—*l* and *r* being interchangeable, and indeed such interchange is the rule hereabouts; thus the common word *gwál*, a cowherd, is ordinarily pronounced *gwár*. And in Chinese transliteration *r* is expressed by *l*. It is a common practice to name villages after their founders: thus Bakura village = 'the village of Bakura.' And so great was the dread inspired by this Bakura that he is even now worshipped by the semi-aborigines of the plains (the *Dosádhs* and *Gwálas*) at a shrine in the village of Jalálábád†, about eight miles east from Uren, under the name of '*Ban-Bakura Náth* or the 'Savage Lord Bakura.' His image is in basalt and represents a squat muscular man in a semi-sitting posture. He has a large sensual head, thick lips and curly hair which latter is fastened in a coil with a scimitar-shaped dagger, as with the aborigines in

\* A Hindú legend of a man-eating demon, bearing the somewhat similar name of *Vaka*, is told in the *Mahábhárata* (Wheeler's Transl., p. 110), the demon being slain by Bhima. But the great Asura *Rájá*, named *Vaka*, lived near the city *Ekaohakra*, which is believed to be within the modern district of Sháhábád, about two hundred miles to the north of Uren. This may be a Hindú version of the Buddhist story.

† And six miles north-east from Kharagpur.

the Barhut Sculptures. And it is interesting in regard to Huen Tsiang's note that the Yaksha was converted to Buddhism, to find that these tribes had acquired profound respect for the remains at Uren; for they had carried off from the ruins to the pass several inscribed Buddhist stones and images, some of which are reverently disposed under trees at the foot of the pass and others on the summit of the pass, where they are rudely worshipped by daubing with vermilion. And most of these fragments show fractures so sharp as to lead to the belief that they had been carried off and deposited where they now are very shortly after the destruction of the Buddhist establishment at Uren.

*Foot-trace of Buddha.*—2nd. "Next to the north is a foot-trace of *Buddha*, a foot and eight inches long, and perhaps six inches wide and half an inch deep." This foot-trace of Buddha is to be found to the north of 'Lorik ká ghar' and about five yards from the summit of the hill; see No. 5 on the plan (Plate I). It is of the right foot, and its dimensions are 23 inches long by  $10\frac{1}{2}$  inches broad and about  $\frac{1}{2}$  to  $\frac{1}{4}$  inch in depth. It is directed to the N.N.E.

The footprint is partly natural and partly artificial, the outer border of the print, for the greater part of its extent, is outlined by a linear flaw in the granite rock, into which has poured a quartzose material, part of which had been picked out to give greater distinctness to the outline. The inner border of the footprint is also a natural line, and the depression of the heel and sole seem also natural; but the rock, forming the ball of the great toe and the marks of the toe-tips, has all been artificially chipped, the operation having been assisted by the rock in this situation slightly tending to scale, or peel off in one or two layers. No chiselling seems to have been resorted to, nor was it needed. In the depression from the root of the toes to the heel, the rock is highly polished and contains traces of numerous inscriptions, all, except the one registered in two lines on the ball of the toes, so indistinct as to give no legible impression—and even this one, I fear will prove unreadable.

*The stūpa above footprint.*—3rd, "Above it (the foot-trace of Buddha) is a *stūpa* erected." Five yards above the foot-trace, and in line with the direction in which it points, is a mound of bricks, the most prominent feature on the hill top, and suggestive of the remains of a small stūpa. The bricks are small, flattened and well-baked, and many of them are wedge-shaped. The narrowness of the rocky base, viz., about 12 feet by 12 feet, would not admit of a very large stūpa being built here. In the village below are collected numerous bevelled and sculptured basalt blocks which formed the facings of small stūpas. At the N. E. base of the brick mound is seen outcropping a part of the base of a thickly plastered wall, but its direction is nearly straight, and as it is dis-

posed somewhat radiatingly to the centre of the brick mound, it may be the remains of a wall bounding a path leading up to the stūpa; but as I had no leisure to explore the mound properly, I left it undisturbed. The villagers report that at the last quarrying operations, about four years ago, the overseer carried off a black stone which was on the top of this brick-mound, and there is a square arrangement of the superficial bricks around the centre of the mound suggestive of the existence of a small square shrine here. The position being on the very top of the hill, it is quite possible that there may have been here a relatively modern shrine to a Brahmanic god, erected on the ruins of the stūpa and built with the bricks of the latter. Some of the villagers say that the officer of the 'fort' had his house here, but this is manifestly absurd, as there is no room for a dwelling house in such a circumscribed spot. This brick mound, therefore, demands careful exploration, although it is extremely improbable that any relics will be found here, as the depth of bricks now remaining is only about 3 feet or so.

*Buddha's lotā-print.*—4th. "Again to the south is the impression on a stone on which Buddha set down his *kuṇḍīka* (*kuṇḍīka* or water-vessel). In depth the lines are about an inch and are like a flower with eight buds (or petals)." This mark, which is locally known as Lorik's 'lotā-mark'—*lotā* being the modern term for the ancient *kuṇḍīkā*,—is still an absolutely fixed point, although the mark itself no longer exists, the portion of rock on which it was graven having been blasted about five years ago. Several of the villagers whom I separately interrogated led me always to the very same spot. Fortunately, however, in this case we are not dependent on the mere testimony of the villagers. On several parts of the hill are sculptured on the rock the figures of stūpas or chaityas of most elaborate patterns. And I observed that these groups of stūpa-figures have their apices pointing towards one or other of the footprints and other sacred markings. In this case, the group of stūpa-figures which are situated immediately below, and with their apices directed towards the reported site of the lotā-mark are supplemented by figures of the lotā or water-vessel very specially and prominently displayed; see Plate II.

The lotā is here figured in no less than three and probably four different phases, viz. :—

(a) The small single circle to the left of the stūpa (No. 1, Pl. II.), which is reported to be the exact facsimile reproduction of the actual circumference of the body of the original lotā-mark—now destroyed as above noted; its diameter measures  $7\frac{1}{4}$  inches.

(b) The elongated pear-shaped figure (No. 2, Pl. II), immediately

opposite the circle, on the right of the stūpa, is the same *loṭā* seen in profile, with four leafy projections at rim and with rope attached. To prevent all mistake as to the object here represented, the Buddhist artist (probably a monk) has added the indication of the four fingers in the act of grasping the rope, from which the *loṭā* is suspended.

(c) Below the circle, representing the circumference of the *loṭā*, is the profile of an ascetic's pitcher (No. 3), such as are still used by Hindū mendicants under the name of *kamaṇḍalu*. In this case also are represented four fingers in the act of grasping the rope-handle of the *loṭā*.

(d) The looped figure (No. 4) by the side of the *loṭā* profile on the right is evidently the coiled drawing rope of the *loṭā*. When straightened out, it measures 3 feet 4½ inches.

The remaining figures, except the large concentric circles (which may possibly represent cymbals, being much too large for a begging bowl), are merely accessories of worship, viz., a pile of granular material (evidently intended for rice and sweetmeats) on a raised tray, and the *sankha* or conch shell-trumpet (fig. 6) blown at the hours of worship also on a stand. These are evidently representative of the offerings and worship which were daily being made at the *loṭā*-print of Buddha, at the time when the drawing was executed. The inscription, contained in the base of this chaitya, seems to be merely the Buddhist creed, and is written in characters of the 8th or 9th century A. D.

Regarding the original *loṭā*-print, the villagers concur in reporting that its depth was a little over the length of the terminal phalanx (1st joint) of the index-finger, thus concurring with the pilgrim's description of "about an inch deep." The small circle, above noted as measuring 7¼ inches across, is said to have been equal to the circumference of the shoulder of the *loṭā*-print; but the rim of the print was of about one inch greater width all round than the base, and the whole depression was ornamented 'like a flower' (N. B.—this was a spontaneous expression of one of the villagers, thus agreeing with the pilgrim's account.) It is not recollected by the villagers how many petals were represented: but in the *loṭā*-profile (fig. 2), represented to the right of the stūpa-figure, are four petaloid appendages to the rim, two of which are distinctly subdivided (see also larger tracing No. 2a. at the foot of Plate II) thus affording evidence of the subdivision of the flower into eight petals as described by Hiuen Tsiang.

Further, the villagers report that all around the *loṭā*-print, the rock was highly polished and covered with numerous inscriptions in unknown characters. That the rock hereabouts was highly polished, I find to be the case as the rock containing the *loṭā*-print was on a ter-



race, about  $2\frac{1}{2}$  feet above the plane of its stúpa-figures below, and a portion of this old surface, about four feet above the site of *lotá*-print, has escaped dislodgement by the blasting and shows towards its lower border a commencing area of high polish. Finally the *lotá*-print was situated on the southern portion of the hill (see Plate I) as stated by the pilgrim.

*Foot-prints of the Yaksha*.—5th. "Not far to the south-east of this spot are the foot-traces of the Yaksha Vakula. They are about 1 foot, 5 or 6 inches long, 7 or 8 inches wide and in depth less than 2 inches." In the exact direction and position here indicated, *viz.*, south-east from the *lotá*-mark and at a distance of about 100 yards, were the two "footprints of Lorik" (see No. 4 on Plate I.) These marks, which were well-known to the villagers were blown up only four years ago. The two footprints were each about 18" long by 7 or 8 inches wide (described by villagers respectively as one *háth* (cubit) and two palm-breadths) and about 2 inches in depth. The divisions of the toes were clearly incised, and the surrounding stone was highly polished. One footprint was in front of the other, and they tended S. E. in the direction of *Lorik-ká ghar*, the abode of the yaksha. I would here refer to the unfortunately erratic manner in which these blasting operations are being conducted. At this particular part of the hill the only portion of the rock blasted was that which contained these two footprints and about  $1\frac{1}{2}$  feet on either side of them—as if this overseer (a European) had purposely demolished these ancient marks. I believe the fact really is, that these markings were made on the most compact and undecomposed rock—the so-called *jítá pathar* 'the living stone' of the quarriers, and its highly polished surface attracted their unkind attention.

*Colossal statue of Buddha*.—6th. "Behind these traces of the Yaksha is a stone figure of Buddha in sitting posture about six or seven feet high." No superficial trace of this image now exists, unless a small splinter of basalt, which I found a few yards lower down and which had formed part of some image, can be considered as such. At this site, however, is a hollow, between two shoulders of rock, which has become filled up with the debris of ages, so it is possible that excavation here might reveal traces of this statue.

*Buddha's promenade*.—7th. "Next to the west (of Yaksha's foot-prints), not far off is a place where Buddha walked for exercise." In the situation here indicated is a narrow level tract between two long massive shoulders of rock, see Plate No. III. Before the great accumulation of debris had taken place, the rock on either side must have stood up like walls and bounded a rocky lane—a most suitable pro-

menade for the great ascetic, affording an outlook only to the distant hills and overhead the sky.

*Marks where Buddha sat down.*—8th. "Below a corner of the south-east side of the mountains is a great stone. On this are marks caused by Buddha sitting thereon. The marks are about an inch deep, 5 feet 2 inches long and 2 feet 1 inch wide. Above them is built a stúpa." Julien, however, notes\* the existence of a cave here in which Buddha dwelt. He says "Au bas d'une caverne située au Sud-est;" yet, Beale makes no remark when giving a different translation, viz., 'corner.' It will be seen presently that Julien's translation seems the correct one. I have left the identification of this site to the last, because the whole of the old surface of the S. E. corner of the hill has been removed by blasting, and the markings on the rock here must have been demolished by the quarriers. Evidence, however, is still extant of the former existence of a Buddhist sacred spot within the quarried area near the point marked No. 7 on Plate I, "on the south-east side of the hill." On the vertical face of the rock, about twenty and thirty yards to the south and S. W. of that spot, are carved two stúpas pointing to that spot, and the old surface of the rock on the verge of the quarry and about seven or eight yards above that spot shows the commencement of an area of high polish such as is only found at the sacred spots; and here are numerous traces of short inscriptions but mostly illegible. Evidence also is found of the existence of a cave here. On this edge of the quarry, in comparatively modern Devanágari characters, is cut the inscription *Jájú ghar*, i. e., 'Jájú's cave or house.† This Jájú was evidently a modern occupant of the cave in which Buddha formerly dwelt, which was close to the large pípal tree (*Ficus religiosa*), see No. 7 on Plate I, and which was removed by the railway quarriers. But the villagers possess no tradition of any ascetic or local worthy of the name of Jájú, nor indeed were they aware of the existence of this inscription, till I pointed it out. He must have lived several generations ago. The greater portion of this side of the hill was blasted about thirty years ago, but farther blasting was done three years ago and also this year, and as the ballast coolies gather up fragments of bricks as well as stones, the remains of the stúpa here must have been removed. In a hollow in the rock immediately to the west of this are the numerous remains of broken bricks presumably those of the stúpa.

*The Hot Springs in relation to Uren.*—The above are the remains

\* *Op. cit.*, III, p. 70.

† *Ghar* is the Mithila vernacular for *ghar*, a dwelling, and this portion of Monghyr district is included within the Mithila range of dialect. GRIFFITH'S *Bihar Peasant Life*, p. 331.

noted by Hiuen Tsiang as existing on the hill. But immediately following the pilgrim's description of the hill is the paragraph: "To the west of this are six or seven hot springs. The water is exceedingly hot. To the south the country (I-lan-no) is bounded by great mountain forests in which are many wild elephants of great size. Leaving this kingdom, &c."

General Cunningham considers this note regarding the hot springs as being related to the description of Buddha's hermitage on the hill. But that it is so related, is open to doubt in view of the fact that (a) Hiuen Tsiang, as Beale remarks,\* was evidently writing from the capital of I-lan-no-po-fo-to, not having himself visited this hill, and (b) the preceding paragraph seemingly disposes of this hill with the words, "Formerly when Buddha subdued the Yaksha, he commanded him not to 'kill men nor eat their flesh. Having respectfully received the law of 'Buddha, he was born in heaven,'" and the succeeding paragraph would seem to refer to the *country* of I-lan-no and not to this *hill*.

This paragraph therefore, regarding the direction of the hot springs, may equally well be taken as indicating their direction from the capital instead of from the hill. West from the capital of 'I-lan-no po-fo-to', which, as before noted, Vivien de Saint Martin, Fergusson and Cunningham are agreed was situated at or near the present town of Mungir, are two groups of hot springs the water of which "is exceedingly hot," viz., the hot springs of Janamkund, distant about 20 miles† to the south west, and the hot springs of Bhimbānd, distant about 25 miles to the S. S. W. and mentioned by General Cunningham. Dr. Buchanan visited these springs about the year 1810 and found the temperature of the waters to be in both cases 150° Fah.‡. And a more modern observation records the temperature as being 145°F. and 146·1°F. respectively.§

But even were the reference to the hot springs taken as an essential part of the description of the hermitage hill, "then hot springs are still to be found not far off from Uren, and in a direction not altogether out of keeping with the pilgrim's description. The hot springs of Singhi Rikh are about three miles due south from Uren, and the hot springs of Janamkund are about twelve miles south-east from Uren; but, as a range of hills intervenes, the road leading from Uren to both of the above springs proceeds *south-west* for about four miles so as to get round the shoulder of this range of hills. So that on enquiring from certain villagers, at Uren, the way to the hot springs of Singhi Rikh

\* *Op. cit.*, i., foot-note, No. 11, p. 190.

† The pilgrim does not specify any distance for the springs.

‡ *Eastern India*, II, p. 198.

§ L. A. WADDELL, J. A. S. B., Vol. LIX, II, p. 226.

and Janamkund, I was directed to go south-west, and only subsequently ascertained that these springs really lay to the south and south-east respectively.

To describe, therefore, these springs in general terms as lying to the west of Uren is perhaps allowable under the circumstances, as the pilgrim was noting down a mere hearsay report, and the determination of such niceties of direction for distant places, where tortuous passages among hills are concerned, is possible even in modern times only to those provided with a compass. At each of these two sites the hot water outflows at six or seven separate springs.

*Remains on hill additional to those noted by Hiuen Tsiang.*—In addition to the above described remains and markings noted by Hiuen Tsiang, I observed on the hill the following additional remains :—

(a) *Part of a rock-cut inscription in large cuneiform headed characters* on the summit of the hill about four feet to the east of Buddha's footprint, (see No. 4, Plate IV.) The rock here is much scaled, so that only a fragment of the inscription is apparent. The inscription seems to be in 5 or 6 lines. The fragment given in the plate is the only portion legible and seems to be a portion of the 3rd line. This inscription is bounded by four lines forming a square with a side of about 7 feet; the borders of which are in exact relation to Buddha's foot-print.

(b) *Short rock-cut inscription in later Gupta characters*, on highest peak of rock, and about three feet above Buddha's footprint. See No. 5, Plate IV).

(c) Innumerable names in a great variety of archaic characters cover the surface of rock, at the summit for several square yards. These are written across one another in every direction, and are evidently in most part the names of pilgrims. On such an exposed situation and worn away by the feet during so many centuries, the words are well nigh obliterated and will I fear prove quite illegible. The ordinary process of copying by ink-impression is much too rough for such markings and only indicates those written in the larger sized letters. On one part of the rock, at No. 9 on map, are characters of a distinctly Burmese type forming a closely written series of about ten lines.

(d) A footprint with modern Hindi inscriptions and traces of words in older characters is found on the south-east portion of the hill at the point marked No. 6 on Plate I. The footprint measures 24 inches in length, by 9 inches in breadth; its outline is rather indistinct, and compared with Buddha's footprint it has a relatively modern appearance—the presence, however, of some letters in the Kutila character show that it must be of considerable age, although probably subsequent to the time of Hiuen Tsiang.

(e) Numerous *chaitya* figures sculptured on the rock on various parts of the hill. The site of these are indicated on Plate I, and they all have their apices pointing to one or other of the holy spots. On the base of the large *chaitya* figure of the *loṭā*-mark, and also on a vertical one at the south-west corner of the hill, are inscriptions, but these seem merely to contain the Buddhist creed.

*Résumé of evidence identifying Mt. Uren with the hill described by Hiuen Tsiang.*—Taking a brief *résumé* of the evidence for the identification of Mt. Uren, with the hill described by Hiuen Tsiang, we see that the identity is proved by:—

- 1st. The geographical position.
- 2nd. The physical conformation of the hill.
- 3rd. The actual presence and co-existence of all the very numerous and specialized remains and rock-markings noted by Hiuen Tsiang.
- 4th. The very numerous votive Buddhist statues and *chaityas* and the thousands of names carved on rock, indicating a sacred place of Buddhist pilgrimage.
- 5th. The survival of the old tradition recorded by Hiuen Tsiang that the hill-top was the abode of a demon, and his abode and footprints and the *loṭā*-mark still being pointed out, and the survival of the name and worship of 'the Savage Lord *Bakura*.'

#### THE REMAINS AT BASE OF THE HILL.

I now proceed to describe the superficial remains at the base of the hill. Running out from the north base of Mt. Uren is a small flat and somewhat rocky spur on the northern extremity of which is situated the village of Uren. Occupying the north-eastern portion of this spur and adjoining the base of the hill, is a terraced area of broken bricks and fragments of Buddhist statues and hewn stones, locally known as "*Indardaun ká garh*—the fort of Indardaun, see No. 13 on Plate I. Indardaun (the Indradymna of Buchanan\*), whose name still lingers in the memory of the people, was the reigning king of Magadha, at the time of the Muhammadan invasion in 1195 A. D., and he is believed by Buchanan to have been one of the Pála dynasty which was Buddhist, and on his flight from Bengal he is stated to have built the temple of Jagarnáth, the original Buddhist character of which seems undoubted.

*The so-called 'garh,' or fort, evidently a monastery.*—Although it is not improbable that some of Indardaun's troops may have occupied this

\* *Eastern India*, II, 23. Also Cunningham's *Repts.*, III, p. 132.

post when being hard-pressed by the Muhammadan invaders,—the historical accounts, however, state that his troops fled without offering resistance—still the whole appearance of the place seems to justify the belief that the so-called ‘*garh*’ or fort at Uren was originally and essentially a Buddhist monastery. It is much too small in size for a fort, nor has it the outline ditch or earthworks of one or any cavity or depression within. On the other hand it teems with fragments of Buddhist statues and rough-hewn lintels and door-jambes, and seems to have been an almost solid mass of brick buildings. An old resident states that when the greater part of the ruins were being dug up for bricks on the construction of the adjoining railway embankment over thirty years ago, the appearance revealed was that of innumerable small rooms, and in one of these he saw on a shelf-like recess in the wall a folded-up cloth like a sash, which crumbled to dust on being touched.

*Historic reference to this monastery.*—No mention is made by Hiuen Tsiang of a monastery at this place: this may be owing to his not having himself visited the locality. That a monastery did exist at such a sacred place, hallowed by the residence of Buddha and containing so many visible “traces” of his presence, and itself a place of pilgrimage, may be considered certain. From another source we find what seems a reference to this monastery. The fullest accounts of Buddha’s life, yet known, are preserved in the Southern Scriptures, and from these it would appear that this hill is the place where Buddha spent the *Vassa* (rains—July to September, the so-called Lent) of the sixteenth season of his ministry. Reference is only made to one occasion on which Buddha converted a solitary man-eating demon; and both the Sinhalese\* and the Burmese† versions of the legend agree in placing the scene at the place spelt respectively A-lo<sup>h</sup> and A-la-wi, which bears a remarkably close resemblance to the name of Uren—seeing that the old Sinhalese and Burmese translators being unable to pronounce the letter *r*, either elided it or substituted an *l*, thus habitually mangling Indian names. The general details of the attendant circumstances of that event also favour the view that this was the same incident which Hiuen Tsiang narrates. The Sinhalese version further states that the place was 30 *yojanas* (i. e., over 400 miles according to Sinhalese calculation‡) distant from the great Jetavana Vihāra near Srāvastī, which St. Martin§ indicated and Genl.

\* SPENCE HARDY’S *Man. of Buddhism*, 2nd ed., p. 269.

† BIGANDET’S *Legend of Gautama*, I, p. 245.

‡ According to Indian calculation, the *yojana* is considered to be only about seven miles. It is generally believed, however, to have been greater than this in ancient times.

§ *Loc. cit.*, p. 355.

Cunningham\* afterwards identified as a spot in the neighbourhood of Sâhet-Mahet in S. Ondh, and the direct distance hence to Uren is by the map about three hundred miles, but by road it would be much greater. Both versions note that the place was near the Ganges, and that the demon killed and ate human beings, and was converted by Buddha. The Sinhalese account states that the abode of the demon in the forest was high and conspicuous as this hill is; and the Burmese version further states that "Buddha spent herein the sixteenth Season," and adds "on that spot where so glorious and unexpected a conversion "had taken place a monastery was erected."

As the hill of Uren itself offered no room for a monastery this would naturally be built on the spur at the base, now occupied by the mounds of brick ruins.

*Sketch of its extent and superficial remains.*—In the accompanying map (Plate I) will be seen the position, extent and outline of the mass of brick debris, which seems to be the ruins of the monastery. I should mention that in surveying the site I took the measurements by pacing, and one step is taken as being equivalent to one yard. Before the railway excavations commenced about thirty years ago, the ruins are said to have formed high mounds of bricks outlining the position of the walls. But the railway operations removed all the superficial bricks and the greater portion of the foundation of the walls were also dug up. The old villagers report that the bricks thus exhumed from the foundations were of enormous size, viz., about 18 inches  $\times$  10" or 12" and of a thickness like ordinary modern bricks. Notwithstanding the hundreds of cart-loads of bricks thus dug up and removed, it is said that a considerable portion of the foundation still remains intact underneath the present mounds of brick debris; so that excavation may yet reveal the exact plan of the building. The surface of these terraced mounds is strewn with fragments of statues and other sculptured stones. At the point marked No. 14 on the map are fragments of what appears to be a life-sized standing statue of Buddha, and these seem to be more or less *in situ*. The numerous Buddhist images throughout the village are reported to have been all collected from this site and carried to where they now are for greater safety. At the point marked No. 15 on the map were exhumed two ornamented pillars. The points, marked No. 13 on the map, indicate unusually high mounds of broken bricks and rough-hewn granite blocks. There is no evidence that any large village ever existed here.

*Multitude of inscribed images and votive chaityas.*—The multitude of inscribed Buddhist images and votive chaityas of high artistic merit is

\* Arch. S. Rept., I. 534.

only to be accounted for on the supposition that this was a famous place of pilgrimage in olden times. The stone employed is, with few exceptions, a fine, almost homogeneous bluish basalt, which is worked into a high polish. No such rock exists in the neighbourhood. The curved appearance of several of the sculptured slabs shows that they formed portions of small stúpas, such as those which existed on the hill. These blocks were clamped together with iron bolts.

*The Inscriptions.*—Nearly every image bears an inscription. This, in most instances, is merely the Buddhist creed, commencing with '*Om ye dharmma-hetu, &c.,*' such as is usually engraved on votive images. But a few of the longer inscriptions may contain interesting information. For one of these see No. 3, Plate IV. Four of these inscriptions are in the curious cuneiform headed character, found in the upper rock-cut inscription, with wedge-like terminations to the up-strokes, suggestive of the old Assyrian style of letters. These appendages are also attached laterally to certain of the letters. This is possibly the same character as that contained in the two specimens, referred to by Mr. Bondall\* as not having yet been deciphered by archaeologists, but he does not appear to have figured them. This form of character, although Sanskritie has little in common with the style of the so-called 'nail-headed' characters, even were the apex of the triangle directed downwards instead of up. That their style is distinctly wedge-headed is evident from the rock-cut inscription, shown in No. 4, Plate IV; and it will be interesting to find, if they have a north-west origin. Mr. Fleet also notes† having lately received from Gayá a specimen of what may possibly be this character in an inscription on the bottom plate of a brass image of Buddha, which he has not yet made out. The three inscriptions, shown in Nos. 1, 2, and 4, of Plate IV, of which the first two are entire and seem to contain the Buddhist creed, may afford a key to this rare style of character. The style of the characters shows that the majority of the inscriptions date from the 8th to the 12th century A. D.; but the letters of the rock cut wedge-headed inscription when divested of their cuneiform appendages are almost Aśoka-like. One of the smaller inscriptions kindly translated by Dr. Hoernle runs 'This is the pious gift of Śrī Udaya.'

*Old Tank-names in the vicinity.*—It is worth while, here, to give a list of the names of the old tanks or ponds (*pukhar*) in the vicinity; especially as the names are evidently ancient, and survivals of names which are now meaningless to the villagers.

\* *Journey in Nepal, &c.*, p. 54, 1886.

† *Corpus Inscriptionum Indicarum*, Vol. III, p. 19, Calcutta, 1889.



1. Dháka kuṇḍa gadráhí.
2. Shamár gaṛhí pukhar.
3. Kumukhar.
4. Jhár Kathí pukhar.
5. Sarpandáni pukhar.
6. Amrourá do.
7. Sahán do.
8. Sitáhí do.
9. Uraiýá do.

The first three are in the immediate vicinity of Uren, and the others within  $\frac{1}{8}$ th to  $\frac{1}{4}$ th of a mile of that place. In connection with the first named I would note that *Gulrabha* is said to be the name of the house-keeper of the Yaká of A-low\* (Uren), and it is remarkable that the tank retains the old Hindi word *kuṇḍa* in stead of *pukhar*. The second tank is at the side of the so-called *garh* or fort, and seems to be named in this relation. As this tank borders what is evidently the monastery, it is possible that *Shamár* may be a corruption of *Shaman* = Skt. 'Śramaṇa' a Buddhist monk. The third tank-name may mean the "Prince's" [*Sakya*] or the "potter's" tank—there have been no potters living here within the recollection of the villagers.† The fourth name evidently means the tank of 'the *Kath* forest'—*Kath* is the name of a kind of tree occasionally worshipped by the aboriginal Musáhars, and is to be found some miles off, although not now near this tank.

*The purity of the Buddhism.*—The purity of the form of Buddhism prevailing at this establishment is evidenced by the almost total absence of Sivaic images and the very orthodox nature of the truly Buddhist images, and this is in keeping with Hiuen Tsiang's statement that most of the monasteries in this district were of the Hínayána school—the more primitive and pure sect. The majority of the images represent Buddha in the meditative form, others show him in a sitting posture as Teacher expounding the Law, and a few represent him standing and entering into the state of *Parinirváṇa*. He is as frequently represented crowned, as with the tonsure. The monkey episode and the crouching elephant are frequent accessories. The central supporting figure in most of the basements is a squat human male figure with snake-like locks of hair, see Plate IV, No. 2. The upper two-thirds of a female figure in sandstone with leafy ornaments are somewhat after the

\* SPENCE HARDY *Op. cit.*, p. 270.

† [The name means neither. It is a contraction of Skr. *Kumbhapushkara*, lit. 'jar-tank'. It contains no reference either to a prince or a potter. Ed.]

style of the Mathurá sculptures figured by General Cunningham.\* At a hamlet about a mile to the west is a perforated screen and a portion of a slab with an elegant scroll design.

The only trace of impurity, observed by me, was found in a small four-armed figure of Avalokiteśvara and a small highly carved marble image of the Bodhisattva Tāra of the Nepalese and Tibetan Buddhists. On the back of the latter image is inscribed the Buddhist creed in mediæval *Kutīla* characters, and in the base are portrayed the seven treasures of a *Chakravartī rājā*, such as Śakyamuni was to have been, had he not adopted the life of an ascetic; viz., (1) a wheel (*chakra-ratna*), (2) elephant (*hasti-ratna*), (3) horse (*aśva-ratna*), (4) a jewel on a trifid pedestal (*maṇikya-ratna*), (5) a general (*senāpati-ratna*), (6) a minister (*grahapati-ratna*) and (7) a good wife (*stri-ratna*).

In its palmy days, this rocky hill, studded with stūpas and its profusion of images and ministering monks, must have formed a most picturesque sight.

#### DATE AND MODE OF DESTRUCTION OF THIS BUDDHIST ESTABLISHMENT.

Buddhism is known to have been the state-religion in Magadha so late as the reign of Mahipāla, whose inscription, notifying this fact, is dated 1026 A. D. It would thus appear, in Magadha, at least, to have been little, if at all, affected by the Brahmanical persecution under Śaṅkarācārya.† General Cunningham states‡ that Buddhism “continued to be the dominant religion of Magadha from the middle of the eighth century “down to the time of the Muhammadan conquest, when the monasteries “were destroyed, and the monks put to death by the ruthless and illiterate Musalmans.” But it is not apparent on what grounds the General makes the latter portion of this statement, and the attitude towards Buddhism of the Pāla kings, subsequent to Mahipāla, does not yet appear to be definitely known. Some evidence, however, seems to be available regarding the approximate date and mode of destruction of this Buddhist establishment at Uren which favours the above statement. The latest Buddhist inscriptions on the images are written in mediæval Nāgarī characters, such as commenced to be current about the 12th and 13th centuries A. D. And local tradition ascribes the destruction of the ‘garh’ and the temples containing the images (Buddhist) to the

\* *Arch. Survey Reports*, vol. I, pl. 40, and vol. III, pl. 6.

† “Ce fut dans ce temps (9th century A. D.) qu'apparurent des ennemis terribles, pour les bouddhistes. Çankaraatchareia et son disciple Bataatchareia, qui exterminèrent le Bouddhisme, le premier dans le Bengale, le second, à Orissa.”—TARANATH in Vassilief's *Le Bouddhisme*, p. 53.

‡ *Arch. Survey Report*, vol. III, 119.

Pathán soldiery at the Muhammadan invasion of Bihár, which event took place in 1195 A. D. under the Afghán General Bakhtyár Khiljī.\* Stewart† states that Indradyumna's troops fled without offering any resistance; thus the teeming monasteries were left unprotected, and the Muhammadans appear to have regarded the monks as the soldiery of the enemy, and massacred them wholesale. What happened in the neighbouring monastery of Bihár (*vihára*) has been chronicled by one of the historians of the invaders, and it is typical of what must have happened a few days later at Uren. He says‡ “Muhammad Bakhtyár “with great vigour and audacity rushed into the gate of the fort and “gained possession of the place. Great plunder fell into the hands of “the victors. Most of the inhabitants of the place were Bráhmans with “shaven heads. They were put to death. Large numbers of books “were found there; and when the Muhammadans saw them, they called “for persons to explain their contents, *but all the men had been killed.* “*It was discovered that the whole fort and city was a place of study (madra-* “*sah).* For in the Hindí language the word *vihára* means ‘a college.’” In the above account the occupants of the monasteries are described as ‘Bráhmans with shaven heads.’ These were quite evidently Buddhist monks, as the rude idol-hating invaders were ignorant of the religious distinctions of the Indians, and having killed all the Buddhist monks, the subsequent historian merely designates the massacred priests by the title of the surviving priests of the people. In support of this view is the reference to shaven heads, which condition is a characteristic of Buddhist monks, and not of Bráhman priests, who leave a tail of hair uncut at the crown and do not differ in this respect from the laymen.

*Invading Muhammadans the destroyers.*—This tradition is also fully supported by the appearance of the remains. The deep-rooted respect paid by Hindús to images and idols of every description, even though these be of strange gods, is as well known as is the Muhammadan's religious abhorrence of images; and Patháns are amongst the most fanatical of Muhammadans. Most of the large statues have been shivered into pieces, and of the smaller ones scarcely any have escaped serious mutilation; and that the mutilation was deliberately done is evident from the heads being broken off and features chipped, even when these were in depressed positions and not readily reached; the marks of hatchet cuts are also visible. This same spirit for mutilating images,

\* BLOCHMANN in *Statistical Acc., Bengal*, XV, p. 63. STEWART (*Hist. Bengal*, p. 39), puts the date at 1199 A. D.

† *Loc. cit.*

‡ *Minháj-i-Siráj in Tabaqat-i-Násirí*, transl by ELLIOT, II, p. 306.

on religious grounds, still survives amongst Muhammadans. I lately witnessed in Upper Burma this work of destruction taking place under very similar circumstances to what obtained at Uren, *viz.*, a force, consisting mainly of Muhammadan (and these mostly Pathán, *i. e.*, Afghán) troops invading a country actively Buddhistic and hoary with the antiquity of its Buddhist monuments. Although stringent orders had been issued to respect the temples and their teeming images, it was found impossible to repress the Muhammadan soldiery from clandestinely mutilating the very numerous alabaster images of Buddha which abounded in every village. One image would be dashed against another, and the head, thus broken off, used as an instrument to mutilate the features of all the other images within reach, and the heads finally thrown far away. Had these men been altogether unrestrained, the work of destruction must have been enormous. As further illustrating the fanatical spirit of these Muhammadan invaders is the historical note\* regarding their invasion of Koch Bihár: the chief (Mír Jumlah) issued "directions to destroy all the idolatrous temples and to erect mosques in their stead. To evince his zeal for religion, the General himself with a battle-axe broke the celebrated image of Narain, the principal object of worship of the Hindús of that province." This image is known to be the mutilated image of Buddha, still at Koch Hajo and worshipped by Hindús under the name of Mádhab, one of the titles of Náráyana or Vishnu. And at Uren itself, when photographing the two ornamental pillars which are now deposited in the garden of a Muhammadan gentleman of the place, I expressed a regret that the figures had been mutilated; on which the aforesaid gentleman stated that when the pillars were exhumed a few years ago, some of the features still remained entire, but he with his own hands completed the mutilation, as otherwise he could not have tolerated the pillars near his dwelling.

*Mediæval Brahmanic idols similarly destroyed.*—At the time of Hiuen Tsiang's visit to Magadha in the seventh century, although the dominant religion was Buddhism, many Brahmanical temples with their priests existed throughout the country. One such small Brahmanical temple appears to have become established at Uren, at the point marked No. 16 on Plate I. It was far removed from the Buddhist settlement and it enshrined one or all of the following idols, which are still found there:—

- (1) A four (?) armed Durgá.
- (2) A Hara-Gaurí (Siva and Parvatí).
- (3) A pot-bellied god squatted in front of a palm-leaf-like canopy ? (Gaṇeśa).

\* STEWART *Ibid.*, p. 289.

The last noted idol has an inscription in mediæval Nāgarī, and all of them are of very coarse workmanship. But here is the interesting point, as bearing on the destruction of the Buddhist settlement: *all these Brahmanic images have been mutilated in exactly the same manner as the Buddhist images*: the heads being broken off and the features deliberately smashed. No Hindús, nor the hill tribes, who especially worship stones, even unsculptured, could have been the destroying agents here. It is, therefore, only reasonable to believe, as the local tradition relates, that the Muhammadan invaders, not discriminating between Buddhist and Brahmanic images, mutilated both alike. Uren, it is to be noted, must have felt the full force of the invasion, as it lay directly in the line of route to Mungir, a stronghold in which the "invaders soon established themselves, as it seems to have been the second town in Southern Bihár"\* at that period.

*Conservation of Buddhist images by the Hindús.*—The relatively good state of preservation in which many of these fragments of Buddhist images are found after the lapse of so many centuries is directly due to the extreme veneration, in which images of every kind are held by Hindú villagers. The numerous Buddhist images and sculptured stones, now collected on the brick mound, marked No. 16 on Plate VI, which seems to be the ruins of the *deva* temple and is now the *Káli* shrine of the village, are reported to have been gathered by the Hindús from the ruins of the *garh* and deposited there, where they now are treasured up. And as further fragments from time to time are unearthed, they are added to the collection or deposited under one or other of the *pípāl* (*Ficus religiosa*) trees in the village, where the larger ones are worshipped by daubing with red lead. The images of Buddha are thus worshipped under the names of *Mai* (= mother) or *Chandī Mai*, *Parbatī* or *Devī* (= goddess), all of them names of Siva's consort—the mild benign expression of the images being interpreted as indicating a female; and the votive chaityas are worshipped as *lingas* (phallus). In such veneration are these images held that I had the greatest difficulty in copying the inscriptions and taking the photographs. The villagers at first gathered in a rather threatening manner, and said that they would not allow their gods to be desecrated by the hands of any person, whether Hindú or not. I explained to them that these Buddhist images were not Hindú gods at all; but the villagers still persisted in saying that they had for generations become accustomed to regard these images as the *grāma-devatā* (village-gods) of the place, and they would not now give up that belief. Ultimately they were somewhat appeased on my promising to touch the

\* BLOCHMANN, *oc. cit.*

images as little as possible, and to replace them again exactly as I found them; but seeing that the process was a rather tedious one, a guard was always kept at the place to see that I did not carry off any of the stones.

Such an attitude on the part of the villagers—who are here mostly bigoted Bábhans of the Rájpút caste and possibly descendants of the original Buddhist community—has undoubtedly tended to conserve these remains.

It must not, however, be supposed that the protection thus offered by Hindús to Buddhist images is knowingly given out of pious regard for Buddhism. This is not the case. In every instance the images are cherished in the belief that they are truly Hindú gods. The real attitude of Hindús towards Buddhist images is well seen at Bodh Gayá where the Hindú pilgrims to the adjacent Brahmanical shrines may be seen scowling and even spitting upon the Buddhist images now conserved there by Government. Indeed the Gayá pilgrimage, which every good Hindú must perform is one of direct hostility to Buddhism—the great *Gayá Asura* demon, whose suppression is the *raison d'être* of this pilgrimage, being none other than Buddha himself. This should be well considered by those who believe that the adoption of Buddha as an incarnation of Vishnu by certain of the Hindús in mediæval times necessarily implies that Buddhism disappeared from India by amicable amalgamation with Bráhmanism.

*Concluding remarks.*—In conclusion, I would draw especial attention to the following points, the importance of which is indeed self-evident, *viz.*,

1st. The necessity for Government-conservation of the hill without delay, in order to prevent further removal, by the quarriers, of these surviving remnants of antiquity.

2nd. The desirability of thoroughly exploring the monastery mounds and stúpa-like sites, &c., as excavation will doubtless reveal numerous remains now buried among the ruins.

3rd. That the legend of this Yaksha is not a mere Sun-myth as supposed by Rhys Davids following Senart,\* but is founded on a certain basis of fact. Divested of its embellishments, the story resolves itself into the conversion of Buddha of a notorious and dreaded non-Aryan free-booter and possibly a cannibal whose reputation still survives till the present day. In addition to the particulars already given of these so-called 'demons', it is remarkable that the detailed account of the 'Yakás', given in the Sinhalese Scriptures, is an almost exact

\* *Buddhism* by RHYSDAVIDS, p. 78, Lond., 1887.

description of the disposition and leading traits of these wild aborigines up to the present day.\*

4th. The light thrown by the local tradition, coupled with the appearance, age, &c. of the remains, on the probable manner in which Buddhism became extinguished in this part of India, *viz.*, a sudden and complete extinction by the fierce onslaught of the Muhammadan invaders. The Buddhist monks, crowded together in large communities and in special buildings, surrounded with idols, must have appeared to the fanatical invaders as *the idolators par excellence*, and as such were undoubtedly the so-called 'unopposing *Brahmans* with shaven heads' of Muhammadan history† who were massacred by the troops. On the massacre and flight‡ of the monks, the destruction of the temples, &c., and the permanent occupation of the country by the Muhammadan invader, it is not surprising that Buddhism, which, for its popular existence, depends so essentially on its monastic establishment, should have utterly disappeared. Brahmanism, on the other hand, being a much more personal and domestic religion, with comparatively little display of its idols, could still survive the torrent of Moslem fanaticism.

5th. The presence of so many inscriptions in the novel cuneiform headed character is remarkable.

And lastly, additional testimony is here afforded to the marvellous accuracy of that illustrious traveller, Hiuen Tsiang, as a geographer.

*Lamaic Rosaries : their Kinds and Uses.*—By L. A. WADDELL, M. B.

The rosary is an essential part of a Lama's dress ; and taking, as it does, such a prominent part in the Lamaic ritual, it is remarkable that the Tibetan rosary does not appear to have attracted particular notice.

As a Buddhist article the rosary is especially peculiar to the northern school of Buddhists ; and the outcome of the esoteric teachings of the Maháyána school, instilling belief in the potency of muttering

\* "The dwelling-place of the *Yakás* is not in the *narakas* (hell) ; .... they are found in the earth .... They marry and delight in dances, songs and other amusements ; their strength is great ; and some of them are represented as possessing splendour and dignity," and from what follows they are much addicted to "intoxicating drinks."—Spence Hardy's 'Manual of Buddhism,' p. 46.

† *Loc. cit.*

‡ Many of the fugitive monks, seem to have escaped into Nepal and Tibet.—'Sketches from Nepal' by H. A. Oldfield, M. D., II, p. 67.

mystic spells and other strange formulas. In the very complicated rosaries of Japan\* it has attained its highest development.

The rosary is not enumerated in the southern Scriptures among the articles necessary for a monk. But incidental mention is made by Shway Yoe† of a rosary with 108 beads; and several of the Burmese monks I have met possessed a rosary called 'Bodhi' consisting of 72 black sub-cylindrical beads which I understood, were composed of slips of a leaf inscribed with charmed words and rolled into pellets with the aid of lacquer or varnish.

The rosary is not conspicuous amongst Southern Buddhists; but amongst Tibetans, it is everywhere visible. It is also held in the hand of the image of the patron god of Tibet—Ché-ré-si (Skt. *Avalokiteśvara*). And its use is not confined to the Lamas. Nearly every lay-man and woman is possessed of a rosary on which at every opportunity they zealously store up merit; and they also use it for secular purposes, like the sliding balls of the Chinese to assist in ordinary calculations: the beads to the right of the centre-head being called *ta-thang* and registering units, while those to the left are called *chu-ñé* and record tens, which numbers suffice for their ordinary wants.

#### DESCRIPTION OF THE ROSARY AND ITS APPENDAGES.

The Tibetan name for the rosary is འཕྲེང་བ་ 'phreng-ba,' pronounced *pheng-wa* or vulgarly *pheng-nya*, and literally means 'a string of beads.'

The rosary contains 108 beads of uniform size. The reason for this special number is alleged to be merely a provision to ensure the repetition of the sacred spell a full hundred times, and the extra beads are added to make up for any omission of beads through absent-mindedness during the telling process or for actual loss of beads by breakage. Ché-ré-si and Dō-ma have each 108 names, but it is not usual to tell these on the rosary. And in the later Kham editions of the Lamaic Scriptures—the '*ñkah hgyur*,'—the volumes have been extended from 100 to 108. And the Burmese foot-prints of Buddha sometimes contain 108 Sub-divisions.‡ This number is perhaps borrowed like so many other Lamaic fashions from the Hindús, of whom the Vaishnabs possess a rosary with 108 beads.

The two ends of the string of beads, before being knotted, are passed

\* *Note on Buddhist Rosaries in Japan.* By J. M. JAMES, *Trans. Jap. As. Soc.*, p. 173, 1881.

† *The Burman: His Life and Notions* I. p. 201.

‡ *The Burman, &c.*, I. p. 201.



through three extra beads, the centre one of which is the largest. These are collectively called *dok-dsin* (རྩོད་འཛིན་ *rdog-hdsin*) or 'retaining or seizing beads.' The word is sometimes spelt *mdo-hdsin*, and pronounced *dô-dsin*, which means 'the union-holder.' In either case the meaning is much the same. These beads keep the proper rosary beads in position and indicate to the teller the completion of a cycle of beads.

This triad of beads symbolises 'the Three Holy Ones' of the Buddhist Trinity, *viz.*, Buddha, Dharma (the Word) and Sangha (the Church, excluding the laity). The large central bead represents Buddha, while the smaller one intervening between it and the rosary beads proper represents the Church and is called 'Our special Lama-monitor' (ལྷ་པོ་སྐྱོ་མ་), the personal Lama-guide and confessor of the Tibetan Buddhist; and his symbolic presence on the rosary immediately at the end of the bead-cycle is to ensure becoming gravity and care in the act of telling the beads, as if he were actually present.

The Geluk-pa, or 'reformed' sect of Lamas, usually have only two beads as *dok-dsin*, in which case the terminal one is of much smaller size, and the pair are considered emblematic of a vase from which the beads spring. In such cases the extra bead is sometimes strung with the other beads of the rosary, which latter then contains 109 beads; thus showing that the beads really number 111.

Attached to the rosary is a pair of strings of ten small pendant metallic rings as counters. One of these strings is terminated by a miniature *dor-je* (the thunderbolt of Indra) and the other by a small bell—in Tantric Buddhist figures the *dorje* is usually associated with a bell. The counters on the *dorje*-string register units of bead-cycles, while those on the bell-string mark tens of cycles. The counters and the ornaments of the strings are usually of silver, and inlaid with turquoise.

These two strings of counters are called *qang-dsin* (ཁང་འཛིན་, *grang-hdsin*) or 'count-keepers;' but vulgarly they are known as *chub-shé* (བཅ་བཤ་ *behu-bshad*) or 'the ten makers.' They may be attached at any part of the rosary string, but are usually attached at the 8th and 21st bead on either side of the central bead.

They are used in the following manner. When about to tell the beads, the counters on each string are slid up the string. On completing a circle of the beads, the lowest counter on the *dorje*-string is slid down into contact with the *dorje*. And on each further cycle of beads being told, a further counter is slid down. When the ten have been exhausted, they are then slid up again, and one counter is slipped down from the bell-string. The counters thus serve to register the utterance of  $108 \times 10 \times 10 = 10,800$  prayers or mystic formulas.

The number of these formulas, daily repeated in this way, is enormous. The average daily number of repetitions may, in the earlier stages of a Lama's career, amount to 5,000 daily, but it depends somewhat on the zeal and leisure of the individual. A layman may repeat daily about five to twenty bead-cycles, but usually less. Old women are especially pious in this way, many telling over twenty bead-cycles daily. A middle-aged Lama friend of mine has repeated the spell of his tutelary deity alone over 2,000,000 times. It is not uncommon to find rosaries so worn away by the friction of so much handling that originally globular beads have become cylindrical.

Affixed to the rosary are small odds and ends, such as a metal toothpick, tweezer, small keys, &c.

#### MATERIAL OF THE BEADS.

The materials of which the Lamaic rosaries are composed may to a certain extent vary in costliness according to the wealth of the wearer. The *Khén-bo* or abbot of a large and wealthy monastery may have rosaries of pearl and other precious stones, and even of gold. Turner relates\* that the Grand Táshi Lama possessed rosaries of pearls, emeralds rubies, sapphires, coral, amber, crystal and lapis-lazuli.

But the material of the rosary can only vary within rather narrow limits. Its nature being determined by the particular sect to which the Lama belongs and the particular deity to whom worship is to be paid.

#### KINDS OF ROSARIES.

The yellow rosary or *Setheng* (སེང་འཕྲུལ་), is the special rosary of the Ge-luk-pa or 'reformed school,' also called 'the yellow hat sect' (*Shá-ser*). The beads are formed from the ochrey yellow wood of the *Ohang-chhub* tree (བྱང་ཆུབ་), literally 'the Bodhi tree' or tree of supreme wisdom, which is said to grow in central China. The wood is so deeply yellow, that it is doubtful whether it be really that of the pípal (*Ficus religiosa*), of which was the Bodhi tree under which Gautama attained his Buddhahood. These beads are manufactured wholesale by machinery at the temple called by Tibetans *Rí-wo tse-nga* and by the Chinese *U-íha Shan*, or 'The Five Peaks' about 200 miles Southwest of Peking. Huc gives a Sketch† of this romantic place but makes no mention of its rosaries. This rosary is of two kinds, *viz.*, the usual

\* *Embassy to Tibet*, p 261, 1800.

† *Travels in Tartary, Tibet and China*. 'By M. Huc. Hazlitts' trans. I. p. 79.

form of spherical beads about the size of a pea, and a less common form of lozenge-shaped perforated discs about the size of a sixpence. This rosary may be used for all kinds of worship, including that of the furies.

The *Bo-dhi-tse* (བོ་དྭ་མི་ཙེ་) rosary is the one chiefly in use among the Nying-ma-pa, or 'old, (i. e., unreformed) school' of Lamas, also called the *Shá-mar* or 'red-hat sect.' It is remarkable that its name also seeks to associate it with the Bodhi tree, but its beads are certainly not derived from the *Ficus* family. Its beads are the rough brown seeds of a tree which grows in the outer Himálayas. This rosary can be used for all kinds of worship, and may also be used by the Ge-luk-pa in the worship of the fiercer deities.

The white rosary *Tungtheng* (རྩུང་འབྲེང་), consists of cylindrical perforated discs of the conch shell (Tib. *tung*), and is specially used in the worship of Chó-ré-si—the usual form of whose image holds a white rosary in the upper right hand. This is the special rosary of nuns.

The rosary of plain crystal or uncoloured glass beads is also peculiar to Chérési.

The red sandal-wood rosary *Tsén-den-mar theng* (ཙེན་དེན་མར་འབྲེང་) consists of perforated discs of red sandal-wood (*Adenanthera pavonina*) or other wood of a similar appearance. It is used only in the worship of the fierce deity Tam-din (Skt. *Hayagríva*) a special protector of Lamaism.

The coral rosary—*Chi-ru-theng* (ཉི་རུ་འབྲེང་)—is also used for Tam-din, and by the Nyingmapa sects for their wizard-saint Padma Sambhava's worship. Coral being so expensive, red beads of glass or composition are in general use instead. With this rosary, it is usual to have the counters of turquoise or blue beads.

The rosary, formed of discs of the human skull—the *thö-theng* (ཐོ་འབྲེང་)—is especially used for the worship of Dorje-jik-che (Skt. *Yáma*) one of the forms of the King of the Dead. It is usually inserted within the *Bo-dhi-tse* or other ordinary rosary; and it frequently has its discs symmetrically divided by 4 large *Rak-sha* beads into 4 series, one of these beads forming the central bead. There is no rosary formed of finger bones, as has been sometimes stated.

The 'elephant-stone' rosary—*Lyang-chhen-dö-pa* (ལྷང་ཆེན་བོད་པ་)—is prepared from a porous bony-like concretion, which is sometimes found in the stomach of the elephant. It also, being suggestive of bone, is used in worship of *Yáma*. The real material, however, being extremely scarce and expensive, a substitute is usually had in beads made from the fibrous root of the bow-bambu (*Zhu-shing*) which has on section a struc-

ture very like the stomach-stone, and its name also means 'stomach or digestion' as well as 'bow.'

The *rak-sha* rosary (རལ་ཤ་) formed of the large brown warty seeds of the *Elæocarpus Janitrus*, is specially used by the Nyingmapa Lamas in the worship of the fierce deities and demons. The seeds of this tree are normally five-lobed, and it is interesting from a botanical point of view to find, how relatively frequent is the occurrence of six lobes. Such abnormal seeds are highly prized by the Tibetans as being the offspring of the miraculous seeds of Padma Sambhava's rosary—the legend stating that the saint's rosary string broke while at his Halashi hermitage in Nepal, and several of the detached beads remained unpicked up, and from these have resulted the six-lobed seeds. The demand for such uncommon seeds being great, it is astonishing how many of them are forthcoming to diligent search. This rosary is also commonly used by the indigenous Bon-po priests, and it is identical with the rosary of the Sivaio Hindús—the *rudrāksha* (रुद्राक्ष = Rudra's, i. e., fierce Siva's eyes), from which the Tibetan name of *rak-sha* is supposed to be derived.

The *Nang-ga pá-ní* rosary is only used for the worship of Nam-sé, the God of Wealth (Skt. Kubera); and by the *Ngák-pa* or wizards in their mystical incantations. It consists of glossy jet-black nuts about the size of a hazel, but of the shape of small horse chesnuts. These are the seeds of the *Lung-thang* tree which grows in the sub-tropical forests of the S. E. Himálayas. They are emblematic of the eyes of the Garuḍa bird, the chief assistant of Vajra-páni (Jupiter) and the great enemy of snakes—hence is supposed to be derived the Sanskrit name of the beads, from *nága*, a serpent. Its use in the worship of the God of Wealth is noteworthy in the association of snakes—the mythological guardians of treasure—with the idea of wealth.

The rosary of *snake-spines* (vertebræ) is only used by the sorcerers (*Ngák-pa*) for purposes of sorcery and divination. The string contains about fifty vertebræ.

The complexion of the god or goddess to be worshipped also determines sometimes the colour of the rosary-beads. Thus a turquoise rosary is occasionally used in the worship of the popular goddess Dō-ma who is of a bluish green complexion. A red rosary with red Tam-din, a yellow with yellow Jam-yang; and Nam-sé who is of a golden yellow colour is worshipped with an amber-rosary.

The rosaries of the laity are composed of any sort of bead according to the taste and wealth of the owner. They are mostly of glass beads of various colours, and the same rosary contains beads of a variety of sizes and colours interspersed with coral, amber, turquoise, &c., *vide* The number of beads is the same as with the Lamas, but each of the

counter strings are usually terminated by a dorje : both strings recording only units of cycles, which suffice for the smaller amount of bead-telling done by the laity.

#### MODE OF TELLING THE BEADS.

When not in use the rosary is wound round the right wrist like a bracelet, or worn around the neck with the knotted end uppermost.

The act of telling the beads is called *tang-che* which literally means 'to purr' like a cat, and the muttering of the prayers is rather suggestive of this sound.

In telling the beads the right hand is passed through the rosary, which is allowed to hang freely down with the knotted end upwards. The hand with the thumb upwards is then usually carried to the breast and held there stationary during the recital. On pronouncing the initial word 'Om' the first bead resting on the knuckle is grasped by raising the thumb and quickly depressing its tip to seize the bead against the outer part of the 2nd joint of the index finger. During the rest of the sentence the bead, still grasped between the thumb and index finger, is gently revolved to the right, and on conclusion of the sentence is dropped down the palm-side of the string. Then with another 'Om' the next bead is seized and treated in like manner, and so on throughout the circle.

On concluding each cycle of the beads, it is usual to finger each of the three 'keeper-beads,' saying respectively, 'Om!' 'Ah!' 'Hung!'

#### THE MYSTIC FORMULAS FOR THE BEADS.

The mystic formulas for the beads follow the prayer properly so-called, and are believed to contain the essence of the formal prayer, and to act as powerful spells. They are of a Sanskritic nature, usually containing the name of the deity addressed, but are more or less unintelligible to the worshipper.

The formula used at any particular time varies according to the particular deity being worshipped. But the one most frequently used by the individual Lama is that of his own *yi-dam* or tutelary deity, which varies according to the sect to which the Lama belongs.

The formulas most frequently used are shown in the following table:—

NAME OF DEITY.	THE SPELL.	ENGLISH TRANSLITERATION OF SPELL.	SPECIAL KIND OF ROSARY USED
1. Dor-je jik-che རྡོ་རྗེ་འཇིག་ཇེ་ Skt. <i>Yāma (antaka).</i>	ཨོྃ་ཡ་མྱ་ན་ལྷ་མོ་པ་ཨཱ་མྱུ་	Om! Ya-mān-ta-ka hung phāt!	Human-skull or stomach-stone.
2. Chā-na dorje ཕྱག་ན་རྡོ་རྗེ་ Skt. <i>Vajrapāṇi.</i>	ཨོྃ་བནྟ་པ་ཁི་ལྷ་མོ་པ་ཨཱ་མྱུ་ ཨོྃ་བནྟ་ཅནྟ་མ་ན་རོ་ པ་ན་ལྷ་མོ་	Om! Bādsra* pāṇi hung phāt! Om! Bādsra-tsan-ḍu ma-ha ro-kha-na hung!	Rak-sha. Rak-sha.
3. Tam-din དྲ་མགྲིན་ Skt. <i>Hayagrīva.</i>	ཨོྃ་བནྟ་དྲ་མགྲིན་ལྷ་མོ་པ་ཨཱ་མྱུ་	Om! pād-mu ta krid hung phāt!	Red-sandal or Coral.
4. Ché-ré-si or Thuk- je-ohhen-po. ཕྱག་མ་རྗེ་ཆེན་པོ་ Skt. <i>Avalokiteśvara.</i>	ཨོྃ་མ་ཁི་པ་རྗེ་ལྷ་མོ་	Om! mā-ni pād-mo hung!	Conch-shell or Crystal.
5. Dö-ma jang-khu ལྷོ་མ་ཇམ་རྒྱལ་ Skt. <i>Tārā.</i>	ཨོྃ་རྡོ་རྗེ་རྡོ་རྗེ་རྡོ་རྗེ་ ལྷ་མོ་	Om! Tá-re tut-tá-re tu-re swā-hā!	Bo-dhi-tse or turquoise.
6. Dö-kar * ལྷོ་མ་དཀར་ Skt. <i>Satā-Tārā.</i>	ཨོྃ་རྡོ་རྗེ་རྡོ་རྗེ་རྡོ་རྗེ་མ་མ་ ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་ ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་	Om! Tá-re tut-tá-re ma-ma á-yur pu- nye dsa-nya-na pu khip-ḍa ku-ra swā- hā!	Bodhitse.
7. Dor-je phaḥ-mo རྡོ་རྗེ་ཕ་མ་མོ་ Skt. <i>Vajravārahi.</i>	ཨོྃ་མ་མོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་ ཨཱ་མྱུ་	Om! sar-ba Bud-ha ḍak-kin-ni hung phāt!	Bodhitse.

\* It is noticeable that the Tibetans habitually transliterate the Sanskrit *j* by the softer palatal sibilant *ds*.

NAME OF DEITY.	THE SPELL.	ENGLISH TRANS- LITERATION OF SPELL.	SPECIAL KIND OF ROSARY USED.
8. Ö-zer chén-ma འོ་ཟེར་ཅེན་མ་ Skt. <i>Mārīchā</i> .	ཨོ་མ་རི་ཙེ་མ་སྐྱ་རྒྱ།	Om! Ma-rī-tsaye mam swá-há!	Bodhitse.
9. Gön-po nag-po གོན་པོ་ནག་པོ་ Skt. <i>Mahākāla</i> .	ཨོ་སྐྱ་མ་རྒྱ་ལ་ཁྱོ་ ཡཎ་སྐྱ་རྒྱ།	Om! Śrī Ma-há-kā- la hung phāt swá- há!	Raksha.
10. Nam-sé ནམ་སྐྱམ་ Skt. <i>Kubera</i> .	ཨོ་བེ་བྲ་མ་ན་ཡི་སྐྱ་རྒྱ།	Om! Bai-śrá-ma-na ye swá-há!	Nanga páni or Amber.
11. Dsam-bha-la ཌམ་བ་ ལ་ Skt. <i>Jambhala</i>	ཨོ་ཌམ་བ་ཌ་ལེན་བ་ ལ་སྐྱ་རྒྱ།	Om! Dsam-bha-la dsa-len-dra ye swá- há!	Nanga páni.
12. Seng-ge-da སིང་གེ་ཌ་ Skt. <i>Simhānda</i>	ཨོ་སྐྱ་རྒྱུ་སིང་ན་ན་ད་ ཁྱོ་ཡཎ།	Om! ā-hrīh Sing-ha- ná-da hung phāt!	Conch shell or Crystal.
13. Jam-yang འཇམ་དབྱངས་ Skt. <i>Manjuśrī</i> .	ཨོ་ཨ་ར་པ་ཙ་ན་ལྷི།	Om! a-ra-pa-tsa-na- dhi!*	Yellow rosary.
14. Dem-ohok བདེ་མཚོག་ Skt. <i>Saṃvara</i> .	ཨོ་རྒྱུ་ན་ན་ཁྱོ་ཁྱོ་ཡཎ།	Om! hrīh ha-ha hung hang phāt!	Bodhitse.
15. Pādma-jung-né པདྨ་འབྲུང་གནས་ Skt. <i>Padma Sam- bhava</i> .	ཨོ་བཌྲ་གུ་རུ་པདྨ་སྐྱི་ མཎ།	Om! bādsra gu-ru pādma śi-dhī hung!	Coral or bodhitse.

\* The repetition of this spell *ad infinitum* forms one of the earliest elocution exercises of the boy-pupil.

The laity, through want of knowledge, seldom use with their rosaries other than the well known Lamaic formula 'Om! má-ñi pé-me hung', i. e., 'Hail! to the Jewel in the lotus! Hung.' This refers to the Bodhisatwa Chéresi (Skt. *Padma-páni*), the patron-god of Tibet, who, like Buddha, is usually represented as seated or standing within a lotus-flower, and who is believed to have been born from such a flower. This formula is of comparatively modern origin, first appearing in the legendary history (*bkah bum*) of king Srong-tsan-gam-bo, which was one of the so-called 'hidden' treatises, and probably written about the twelfth or fourteenth century A. D. or later. With this formula, which is peculiar to Tibet, may be compared the Chinese and Japanese spells 'Námo Butsu' (=Skt. *Namo Buddháya*, i. e., Salutation to Buddha!) and *Námo O-mi-to F'u* (=Skt. *Namo Amitábháya*, i. e., Salutation to The Boundless Light,—the fictitious Buddha of the Western Paradise.) The Burmese, so far as I have seen, seem to use their rosary merely for repeating the names of the Buddha Trinity viz., 'Phrá' or Buddha, 'Tara' or Dharma and Sangha. And the number of beads in their rosary is a multiple of  $3 \times 3$  as with the Lamas. On completing the cycle the central bead is fingered with the pessimistic formula 'Anitsa, Dukha, Anátha.'

In conclusion may be noted the frequent use of the terms 'Rinchen *theng-wa*' and 'Norbu *theng-wa*,' i. e., 'the Precious Rosary' and 'the Jewelled Rosary' as the titles of anthological books containing choice extracts, especially from sacred literature.

*The 'Tsam-chhó-dung' (rtsa-mchhog-grong\*) of the Lamas, and their very erroneous identification of the site of Buddha's death.—By L. A. WADDELL, M. B.*

In conversations some years ago with Lamas and lay Buddhists at Darjiling, I was surprised to hear that Asam contained a most holy place of Buddhist pilgrimage called 'Tsam-chhó-dung,' which, it was alleged, next to the great temple of *Dorje-lén†* (Sanskrit *Vajrasana*) at Bodh Gayá, was the most holy spot a Buddhist could visit. Asam is usually regarded as being far beyond the limits of the Buddhist Holy Land, and the Chinese pilgrims Fa Hian and Hiuen Tsiang in the fifth and seventh centuries of our era, to whom we are mainly indebted for our knowledge of ancient Buddhist geography, not only do not mention any

\* རྩ་མཆོག་གྲོང་ ||

† རྩ་ཆེན་པོ་ལྷ་ཁྱེད་ rdo-rje-gdan.



holy site in Asam, but Hiuen Tsiang, who visited Gauhati at the invitation of the king of Kámrúp, positively notes the absence of Buddhist buildigs in Asam.\* Sir W. Hunter also in his statistical account of Asam states† that 'there are now no traces of Buddhism' in Asam.

I therefore felt curious to learn further particulars of this important site in Asam, which had apparently been overlooked by geographers.

In Jäschke's Tibetan Dictionary‡ I found 'rtsa-mehhog-grong' defined as a "town in West Asam where Buddha died," and this statement, it is noted, is given on the authority of the 'Gyalrabs', a vernacular history of Tibet. Osoma de Kőrös also notes§ that "the death of Shakya, as generally stated in the Tibetan books, happened in Asam near the city of Kusa or Cána-rúpa (Kámrúp)."

Here then was a clue to the mystery Buddha's death, it is well known, occurred between two *sál* trees near *Kuśinagara* or *Kuśanagara* in the North-West Provinces of India, thirty-five miles east of Gorakhpur and about one hundred and twenty miles N. N. E. of Benares; and the site has been fully identified by Sir A. Cunningham|| and others from the very full descriptions given by Hiuen Tsiang and Fa Hian. The name *Kuśanagara* means 'the town of Kuśa grass¶'; and as the early Lama missionaries in their translation of the Buddha Scriptures habitually translated all the Sanskrit and Páli names literally into Tibetan, *Kuśanagara* was rendered in the 'bKah-hgyur' (the Tibetan version) as 'rtsa-mehhog-grong,' from 'rtsa-mehhog,' kuśa grass + 'grong' a town (=Skt. *nagara*).

Now, near the north bank of the Brahmaputra, almost opposito Gauhati, the ancient capital of Kámrúp, is, I find, an old village named *Sál-Kusa*, and it lies on the road between Gauhati and Dewangiri, one of the most frequented passes into Bhotan and Tibet. With their extremely scanty knowledge of Indian geography the Lamas evidently concluded that this 'town of *Sál-Kusa*' was the 'town of Kuśa,' where Buddha entered into *nirváṇa* between the two *sál* trees—seeing that the word *sál* was also incorporated with the equivalent of 'Tsam-*chhō-dung*', and that in the neighbourhood was the holy hill of Hájó, where,

\* *Si-yu-ki*, trans. by BEAL, II, p. 196.

† I. p. 39.

‡ p. 437.

§ *Asiatic Researches*, XV, p. 295.

|| *Arch. Surv. India P. res.*, I, 76; XVII, 55 &c.

¶ *Kuśa grass* (*Poa monspeliensis*), the sacrificial grass of the Hindús, is also prized by the Buddhists on account of its having formed the cushion on which the Bodhisattva sat under the Bodhi tree. It is also used as a broom in Lamaic temples and as an altar decoration associated with peacock's feathers in the *pumpa* or holy water vase.

as will be seen hereafter, there probably existed at that time some Buddhist remains.

No description of this Buddhist site seems to be on record, except a very brief note by Col. Dalton\* on the modern Hindú temple of Hájo, which shrines a Buddhist image. As I have had an opportunity of visiting the site, and enjoyed the rare advantage of being conducted over it by a Khamis-pa lama, who chanced to be on the spot, and who had previously visited the site several times and possessed the traditional stories regarding it, I beg to present the following brief description of the site to the Society, in illustration of how the Lamas, originally misled by an identity of name, have subsequently clothed the neighbourhood with a legendary dress in keeping with the story of Buddha's death, and how this place, with its various associated holy spots is now implicitly believed by the pilgrims to be the real site of Buddha's *parinirvāṇa*. And in this belief, undeterred by the intemperate heat of the plains, Buddhist pilgrims from all parts of Bhotan, Tibet and even from Ladak and south-western China visit these spots and carry off scrapings of the rocks and the soil in the neighbourhood, treasuring up this precious dust in amulets, and for placing beside their dead body, as saving from dire calamities during life and from transmigration into lower animals hereafter. Authentic specimens of this dust, I was informed, commanded in Tibet high prices from the more wealthy residents, who had personally been unable to undertake the pilgrimago.

The Hájo hill, or rather group of hills, where is situated, according to the current tradition of the Lamas, the spot where Buddha 'was delivered from pain,' lies to the north (right) bank of the Brahmaputra about nine miles north-west from Ganhaṭī (Kámrúp), north latitude  $26^{\circ} 11' 18''$  and east long.  $91^{\circ} 47' 26''$ , and four or five miles north of *Síl-Kusa*. The hill rises directly from the plain, forming a strikingly bold and picturesque mass; and it is a testimony to its natural beauty to find that the hill has attracted the veneration of people of all religious denominations. The semi-aboriginal Meeh and Koch worship it as a deity under the name of Hájo, which means in their vernacular 'the hill.' The Buddhists formerly occupied one of the hillocks, but are now displaced by the Bráhmans who restored the temple, which is now one of the most frequented Hindú temples in Asam. The Muhammadans also have crowned the summit of the highest peak with a masjid.

The cluster of hills presents a very symmetrical appearance as seen from a distance, forming a bold swelling mass culminating in three trident-like peaks, the central one of which is pre-eminent and is regarded by the Buddhists as emblematic of Buddha. The high peaks on either

\* J. A. S. B. 1855, LXXI, p. 8.

side of this are identified with Buddha's two chief disciples, viz., Sāriputra and Maudgalaputra. This triad of peaks is seen from a great distance, and it is only on near approach that the smaller hillocks are observed. These latter number about sixteen and are called *Né-tén chu-du\** or 'the sixteen disciples' of Buddha.

The most holy site, according to the Buddhists, is a bare flattish shoulder of rock, about eight yards in diameter, situated at the north-west base of the hill. This is stated to be the *Sí-wa tsha-gi tur-dō†* or 'the pyre of the cool grove' where Buddha died, and where his body was cremated. The rock here bears several roughly cut inscriptions in Tibetan characters of the mystic sentences '*Om mani padme hung,*' '*Om ah hung,*' '*Om*' &c., and coloured rags torn from the vestments of the pilgrims are tied to the bushes in the neighbourhood. The Hindús have carved here on the rock a figure of the four-armed Vishnu, which the Bráhmaṇ priests call *Dhúbbi*, or 'the washerwoman of the gods', and the rock they call '*Ietai dhupinir pát.*'

It is worthy of note that the Lamas, for the benefit of the resident population of Tibet have made copies of this spot in at least four places in Tibet, viz., at:—

- (I). *Ra-gyab*,‡ in the south-east outskirts of Lhasa city.
- (II). *Pha-pong kha*,§ in the north suburbs of Lhasa.
- (III). *Phur-mó chhe*,|| about twelve miles to the north-east of Tashilhunpo.
- (IV). *She-dag*.¶

These sites were consecrated by placing on them a piece of rock brought from this Asam site, now under report; but the latter spot ~~has~~ <sup>is</sup> the distinctive prefix of *Gyá-gar* or Indian, implying that it is the original and genuine site.

A high cliff, ~~at~~ <sup>close to the west of this spot,</sup> is called 'the vulture's mound hill,'\*\* as in Tibet vultures usually frequent the neighbourhood of the *tur-dō* cemeteries.

A short distance beyond this spot, in the jungle, is a roughly hewn stone basin, about six feet in diameter, called by the Lamas, *Sang-gyá-má ko-ko*, or the pot in which the *sin-je*—the death-demons—boil the heads of the damned. The Bráhmaṇs, on the other hand, assert that it is the bowl in which *Síva* or *Adi-purusha* brewed his potion of lust-excit-

\* མཉམ་པོ་འདྲེན་པ་ལྟ་བུ་ཡིན།

|| རྩ་མོ་ཆོ།

¶ རྩ་མོ་ཆོ།

¶ རྩ་མོ་ཆོ།

ing Indian hemp, and they point to its green (confervoid) watery contents in proof of this. They also state that a snake inhabits the depths of the bowl; but it was certainly absent at the time of my visit.

Advancing along the pathway, leading up-hill, we pass a few columnar masses of rock lying near the path, which are pointed to as fragments of Buddha's staff\*, with which he unearthed this monster bowl.

Climbing up the hill we reach the temple of Kedáranáth, which is approached by a very steep roughly paved causeway. At the entrance is a long inscription in granite in old Bengálí characters, those being the characters adopted by the Asamese. Adjoining this temple is the shrine of Kamalésvar or 'the Lord of the lotus.' Here is a tank called by the Lamas 'Tshó mani bhadra'† or 'the lake of the notable gem'; and they state that many waters-sprites (*Nágas*, serpents or dragons) came out of this pond on the approach of Buddha and presented him with jewels. A small cell by the side of this pond is said to be the place where Buddha set down a mass of butter which had been brought to him as a gift, and the stone *linga* and *yoni* (phallus and its counterpart), now shrined here by the Hindús, are pointed to as being their petrified butter.

Crowning the summit of the hill is a large masjid built by Lutf-ullah, a native of Shiráz, in the reign of the emperor Sháh Jahán, in 1656 A. D. It contains the following Persian inscription:—

بعد دولت سلطان عادل • شهنشاه جهان و خسرو دین  
ابوالغازی شجاع الدین محمد \* شه و شهزاده فرخنده آئین  
چو لطف الله شیرازی بنا کرد \* همایون مسجدی چون خلد رنگین  
بدارالامن مشهور ممالک \* شجاع آباد † خط الله همین †  
به هنگامی که ریات عزیزه \* به صوب بنگ بود از عز و تمکین  
مدام این خانه دین بادمعمور \* بحق حرمت † جناب مہتین †  
ز فیض نعمت الہی قوی باد \* ہمیشہ این مہین بنیاد سنگین  
خرد چون سال تاریخ بتاجست \* ندا آمد جلی شد خانہ دین  
برصابر جوندگان اخبار پوشیده نماند کہ این مسجد اعظم در زمان حضرت  
صاحبقران ثانی شاه جهان بادشاه غازی کمترین فدیوان درگاه مرید و معتقد شا  
نعمت الله لطف الله به اتمام رسانید فی شهر رمضان المبارک سنہ ۱۰۶۷ ہجری

\* ॐ नमो भगवते ॥

† ॐ नमो भगवते ॥

[† The text here is corrupt. Ed.]

*Translation,\**

[In the time of the Governorship of the just Sultán, the monarch of the world and the prince of religion,

Abu-l-Ghází Shujá'u-d-dín Muḥammad, the sovereign and son of a sovereign, an auspicious ruler,

When Luṭfulláh of Shiráz founded a sacred Masjid, beautiful like Paradise,

In the peaceful town of Shujá'-ábád well known in all countries, ...

At the time when the standards were marching towards Bengal with glory and grandeur.

May this house of religion be ever crowded (*with worshippers*) for the sake of the sanctity of .....

May this august foundation in stone be ever firm by the blessings of Ni'amatulláh.

When Reason sought for the year of the date of that foundation, a voice came :—"Jalí Shud Kḥánah-i-dín" (the house of religion became resplendent).

Be it not concealed to the minds of the seekers of information that Luṭfulláh, the humblest devotee of the threshold, the disciple and believer of Sháh Ni'amatullah, brought this grand Masjid to completion, in the reign of His Majesty the Second Šáhibqirán, Sháhjahán, the victorious emperor, in the month of the blessed Ramazán, in the year 1067 Hijrah.]

A detached conical hillock, about 300 feet above the plain, lying about half a mile to the north-east of the hill, and now crowned by the Hindú temple of Mádhava†, is identified with the great chaitya or *Chhōlen chhen-bo‡*, which was erected over the cromated relics of the Tathá-gatha's body.

The present shrine of the temple seems to be the original shrine of an older Buddhist temple, which, according to both Buddhist and Asamese tradition, formerly existed here—the upper portion only is modern. Col. Dalton has described§ the general details of this building, and he states, "The Bráhmans call the object of worship Mádhav, "the Buddhists call it Mahámuni, the great sage. It is in fact simply a "colossal image of Buddha in stone. Its modern votaries have, to conceal

[\* The translation has been supplied by Maulvi Abdul Hak Abid, B. A., of the Calcutta Madrasah. Ed.]

† মাধব দেবালয়.

‡ *མཆོད་རྟེན་ཆེན་པོ།*

§ *loc. cit.*

" mutilation, given it a pair of silver goggle-eyes and a hooked gilt silver-ed nose and the form is concealed from view by cloths and chaplets of flowers; but remove these and there is no doubt of the image having been intended for the 'ruler of all, the propitious, the asylum of cle-<sup>m</sup> mency, the all-wise, the lotus-eyed comprehensive Buddha.' "

This large image of Buddha is called by the more learned Lama-visitors *Munir Muni Mahimuni*, i. e., 'the Sage of Sages The Great Sage.' It is the original image of the shrine, and is stated by the Bráhmánic priests, who call it *Mádhav*, to be of divine origin and an actual embodiment or *avatár* of the god, in contra-distinction to the other images which are called mere '*múrtis*' or hand-fashioned copies of typical forms of the respective gods represented. This may morely mean that the Bráhmáns found this image here, while the others were brought from the neighbourhood or elsewhere. What seems to be the history of the mutilation of this image is found in the account of the invasion of the Koch kingdom of Lower Asam by the Musalmáns under Mír Jumla in 1661 A. D. This chief issued "directions to destroy all the idolatrous temples and "to erect mosques in their stead ..... To evince his zeal for "religion, the General himself, with a battle-axe broke the celebrated "image of Narain, the principal object of worship of the Hindus of "that province."\* *Naráyaṇa* is one of the names of *Mádhav* and a patronymic of the Koch rájá's; and Hajo was a seat of the Koch rájás. And it was at Hajo that Mír Jumla took the Koch king prisoner,†

The other images, not mentioned by Dalton, but which must have existed at the time of his visit, are also of stone and are placed on either side of the large image. They are four in number and are of considerable size. According to the Lama-pilgrims they are all Buddhist images; but the crypt was so dimly lit, and the images so enveloped in clothes and wreaths of flowers that I could not distinguish their specific characters, with the exception of the head and peculiar trident of the first, and the head of the second, which were characteristic and justified their recognized names, viz. :—

No. 1.—*Ogyen Guru* to the left of *Mahámuni*.

" 2.—*Dorje Dolü*‡ to the right of "

" 3.—*Shakya Thuba* " " " No. 2.

" 4.—'*Sencha*' *Muni*. " " " " 3.

Although Hindú priests, as a rule, are not very methodical in their bestowal of names upon the images which they have appropriated from

\* STEWART'S *History of Bengal*, p. 289.

† BEVERIDGE, *Cal. Review* July 1890 p. 12.

‡ འོ་ལྷ་མོ་ལྷ་མོ་།

Buddhist ruins, still I here give the Brahmanical names as reported by the attendant priests, as, this being a wealthy temple, the priests were more learned than usual, and the names should give some idea of the nature of the images. After stating that the Buddhist pilgrims gave the above-noted names to the images, these priests said that the Brahmanical names were as follows, which I give in the order of the previous list :—

No. 1. Dwitiya Mádhaber murti.

No. 2. Lál Kanaiyá Bankaṭ Bihárer murti.

No. 3. Basu Deber murti.

No. 4. Hayagríber murti.

In the vestibule are lotus ornamentations and several articles of the usual paraphernalia of a Buddhist temple including the following :—A pyramidal framework or wheelless car like the Tibetan *Chhang-ga chu-tuk*, with lion figures at the corners of each tier, such as is used to seat the image of a demon which is to be carried beyond the precincts of the temple and there thrown away. The present frame is used by the priests of this temple to parade in the open air one of the smaller images of the shrine (? Hayagríva), but the image is again returned to the shrine. Above this throne is stretched a canopy called by the Lamas *Nam-yul*. It contains the figure of an 8-petalled lotus flower and has, as is customary, a dependant red fringe. On either side is hung a huge closed umbrella. These articles have been in the temple from time immemorial.

Of the external decorations of the temple, the row of sculptured elephants along the basement, evidently a portion of the old Buddhist temple, has been figured by Col. Dalton in the paper above referred to ; and is identical with the decorative style of the Kylas cave temple of Ellora figured by Fergusson in plate XV of his '*Cave Temples*'. The upper walls are covered with sculptured figures nearly life size. The ten *avatáras* of Vishnu are represented with Buddha as the ninth. The remaining figures are of a rather nondescript character, but they are mostly male, and nearly every figure carries a trident (*triśula*)—the *khatam* of the Buddhists. The Lamas state that these figures were formerly inside the temple, but that Buddha ejected them. And it is stated that the temple was built in one night by *Jo-wo gyé-bó Bish-wa-Karma*\* the Vulcan of the Hindús and Buddhists.

Attached to the temple is a colony of *Natí* (नटी), or dancing girls,†

\* བརྩོམ་པའི་ལོ་ལྔ་མཆོད།

† "Asam, or at least the north-east of Bengal (i. e., Kámrúp) seems to have been in a great degree the source from which the Tantrica and Sakta corruptions

who are supported out of the funds of the temple, and who on the numerous feast days dance naked in a room adjoining the shrine. These orgies are part of the Shakti worship so peculiar to Kāmṛúp, but nowhere is it so grossly conducted as at this temple.\* The *Natí* and the idol-car are also conspicuous at the degenerate Buddhist temple of Jagannáth at Puri.

At the eastern base of the hillock, on which this temple stands, is a fine large tank, called by the Lamas *Yön-chhab tshót*, or 'the lake of excellent water.' This pond, it is said, was made by Buddha with one prod of his staff, when searching for the higo bowl already described which he unearthed here. This pond is also said to be tenanted by fearful monsters.

I have been unable to ascertain positively whether any Buddhist building existed here previous to the Lamas' fixing on the site as the Kusanagara of Buddha's death. Certainly no monastery existed here at the time of Hiuen Tsiang's visit to the Kāmṛúp (Gauhati) court in the seventh century A. D., for he says of this country that 'the people have "no faith in Buddha, hence from the time when Buddha appeared in the "world even down to the present time there never as yet has been built "one *Sanghárāma* as a place for the priests to assemble."† The reference which Táránúth§ makes to the great stūpa of Kusanagara as being situated here, in Kāmṛúp, was taken from report and thus would merely show that the present Lama-tradition was current during his time. Any chaitya or other Buddhist building would seem to have been subsequent to the seventh century; and in all probability marked a site visited by the great mediæval apostle of Lamaism, Guru Rimboche or Padma Sambhava. The different accounts of this great teacher's wanderings vary considerably, but he is generally credited in the *Padma Kakhthang* and elsewhere with having traversed most of the country between Lower Asam and Tibet. There is no evidence of Buddha having visited Asam. And in this view it is to be noted that the Bhotan Lamas call the chief image of this shrine *Námo Guru* or 'The Teacher,' one of the epithets of Padma Sambhava. And the images on either side of it are also those of Padma Sambhava, viz., '*Ogyén Guru*,' a mild form, and *Dorje Dolö*, a demoniacal form of this saint. Further, the chief of 'the eight Sages' or *rig-dzin*|| (i. e., receptacle of knowledge) of the Lamas is named Hungkara; and a common title

of the religion of the Vedas and Purāṇas proceeded."—H. H. WILSON, Preface to *Vishnu Purāṇa*.

\* They have their counterpart in the *λερόβουλοι* of the Greek STRABO VIII, 6 p. 20.

† *ཡོན་ཆམ་ཤེན་པོ་*

‡ *Op. cit.*

§ VASSILAKI'S *Le Bouddisme*, trad. du Russe par M. G. A. COMME, p. 44.

|| *རིག་འཛིན་*



for Padma Sambhava is 'the great Rig-dsin', while *Hung* is the usual symbolic term for him. And a very common Lamaic hymn connects Hungkara with this site, viz.,—"In the wondrous great shrine of 'the Eastern Pyre of the Cool-grove' dwells the rigdsin Hungkara (or Lô-pôn Hungkara). Shower on us thy blessings! Come Guru! Come demigods! Come fairies! Come!" No local mention is made of the especial saint of Bhotan, viz., Zhab tung Ngâ-wang Nam-gyal,\* which might have been expected, had he entered Bhotan by this route.

The form of Buddhism here represented is of the highly Tantrik and demoniacal kind, propagated by Padma Sambhava and now existing in the adjoining country of Bhotan. Even this mild form of the image of *Ogyén Guru* has decapitated human heads strung on to his trident. The second image is of a more demoniacal kind. The third image is, of course, Shakya Muni (Buddha). The fourth image, from its Bráhma-nical name, is *Tam-din* (Skt. *Hayagríva*), one of the fiercest forms of demigods and an especial protector of Lamaism. The trident is everywhere conspicuous in the hands of the sculptured figures on the walls, and Shakti rites are more pronounced here than in any other place in Northern India.† It seems therefore quite possible that a visit to Kámrúp, as well as Káshmir, and the mystic traditions of his own land—Udyána (*Tib.* *Ogyén*)—may have accounted for the excessively Tantrik form of Buddhism professed and taught by Padma Sambhava.

It is also remarkable to find that the high-priest of the Hajo temple, in common with the other high-priests in Kámrúp, is called *Dalai*‡,—a title which is usually stated to have been conferred on the fifth Grand Lama of Lhasa by a Mongolian emperor in the seventeenth century A. D.; but the Tibetan equivalent of this title, viz., *Gyá-tshó* or 'ocean', is known to have been used by grand Lamas previously. As, however, the word is Mongolian, it is curious to find it naturalized here and spontaneously used by Bráhmans. It seems also to be the title of village-headman in the adjoining Garo hills. The *dalai* of this temple is a married man, but the office is not hereditary. He is elected by the local priests from amongst their number, and holds office till death. He resides at the foot of the hill, below the temple, in a large house, the exterior of which is profusely decorated with the skulls of wild buffalo, wild pig, deer, and other big game, &c., like the house of an Indo-Chinese chieftain.

\* ཞབ་ཀྱི་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་ལྷ་མོ་ ||

† Dancing girls appear to figure to some extent in certain Lamaic ceremonies in Bhotan, vide TURNER'S 'Embassy to Tibet', p. 32.

‡ He writes his title ལྷ་མོ་.

*Troy weights and General currency of ancient Orissa.*—By BĀBŪ M. M. CHAKRAVARTI, *Subordinate Executive Service of Bengal.*

Little is known regarding the measures of weights of gold and silver, or of the coins and currency in use in Orissa at the time of Hindú kings. Sterling incidentally mentions certain weights in his lucid history of Orissa. But Dr. Hunter was the first to apply European criticism to find out the relations between gold, silver and other marketable articles of Orissa.\* As an intelligent attempt to clear up an extremely obscure question, his *History of Orissa* deserves all praise. It was published in 1872. Since then no one has tried to tread in his footsteps, probably owing to the absence of any reliable data. The following facts, therefore, are published in the hope that some ripe scholar may be induced to take up the threads and weave them into a harmonious whole.

My information is chiefly derived from "Mádalá Pánjí" or the Chronicle of the Temple of Jagannáth at Púrí. This work mentions the various measures in use, and furnishes details which indirectly reveal the proportions between the measures. The problem is to convert them into modern equivalents, otherwise they will not be properly understood. Here the greatest difficulty arises. Not much help is obtainable from contemporary Muhammadan historians. Orissa was one of the last kingdoms to come under the rule of the Patháns and Mughals, and even then, being an out-of-the-way region, attracted little notice.

The Mádalá Pánjí was begun after the erection of the present temple of Jagannáth, the generally accepted date of which is 1197-98 A. D. It does not mention the names and relations of the measures in use before this time. Probably they were the same which we find later on. Orissa appears to have formed a part of Kalinga, and was often the battle-field between the emperors of northern Hindustán and kings of Kalinga. Kalinga was essentially a kingdom of the Deccan; and the Deccan measures must have prevailed in Orissa.

Chorganga† conquered Orissa in the beginning of the 12th century, and founded the well-known Gangavamśa. He came from far South, and the system in force in S. India came into full operation in Orissa during the reigns of his descendants.

According to the Mádalá Pánjí, Ananga Bhíma Deva of this dynasty built the present temple of Jagannáth, and liberally endowed it with

\* *History of Orissa*, Vol. I, ch. V, notes 309 and 337.

[† His identity is uncertain, see Sewall's *Sketch of the Dynasties of S. India*, pp. 18, 19, 44, 51, 67. Ed.]

ornaments and furniture. In giving a description of these endowments, the chronicle says :—

एते पदकु सुना रूपा मध्य द् ७२ ति सुना कम द् ५५ कु सुना प ८५९ लकुर उषाविधि-  
निसने दानोषा पल समसिर प १ मा द् ७ खेखार सुना मा १८७२ द् रूपा कम द् १८ ति  
प ११५ ल। १ प १ मा द् ७ रूपा मा १०८० द् लकुर रूपा कारणकु देहा मा ५ सुना मा १  
द् खेखार मा ११९ द् गार प १ सुना रूपा कम मा ८०७२ द् सुना देहा मा ७०८८ द्।

“All these (ornaments) in gold and silver—73 pieces. Gold work 55 pieces = 859 pals of gold, or at the rate of pala measure used for gifts and ceremonies, viz., 1 pala = 8 mārhas, = 6872 mārhas. Silver work 18 pieces = 135 palas, or at the rate of 8 mārhas per pala, = 1080 mārhas (in weight) of silver, or at the rate of 1 mārha of gold = 5 mārhas of silver, = 216 mārhas of gold. Total (in weight), gold and silver work 8073 mārhas, or (in value), gold 7088 mārhas.”

नौकर १२ पालिकु पालि नौनौ चीना खेखार मा १८।१ चीना

“For not 62 turns (of worship), at the rate of 3 chinás (per turn) 18 mārhas, 6 chinás.”

These two extracts suffice to show the following proportions :—

10 chinás = 1 mārha

80 „ = 8 „ = 1 pala.

A measure, very similar to this, still continues in the interior of the Púri District :—

4 ratis = 1 chiná

40 „ = 10 „ = 1 mārha

80 „ = 20 „ = 2 „ = 1 tolá.

For the highest weight, we have here a tolá. But a pala is an old weight found in Mann and the Atharva Pariśishṭha.\* In the Institutes of Mann, the measures of gold are stated to be

5 ratis = 1 másha

80 „ = 16 „ = 1 suvarṇa (agrees with tolá)

320 „ = 64 „ = 4 „ = 1 pala or nishka (agrees with the pala of Mádulá Pánjí).

The coins of ancient India were used not merely as an exchange for articles, but as weights also. Their study therefore, throws much light on the troy measures. In South India, of which Orissa was to all intents and purposes a part, the fanam (पण of Lílávati) was the standard coin of gold. The chinám appears to be another name of fanam, both being equal to 4 ratis. One rati is generally accepted to be equal to 1.75 grains on the average.† A standard fanam or chinám is, there-\*

\* Quoted in Thomas' *Chronicles of the Pathan kings of Delhi*, page 221, note 1.

† This ratio is accepted by Thomas and General Cunningham. But Mr. Smith differs (see his article in this Journal, Vol. LIII, of 1884, pages 146-7).

fore, equal to 7 grains. All old fanams approach this weight closely, varying from 6 to 7.5.\* A mápha, which is ten times a chinam, would, therefore, be 70 grains in standard weight. Several old coins have been found approaching this weight. Sir W. Elliot mentions one coin of S. India weighing 66.9 grains.† Mr. Fleet has described six coins of E. Chalukya kings varying from 65.9 to 66.8.‡ In another essay I hope to show that Chorganga, the founder of the Gangavamśa dynasty of Orissa, is connected with the E. Chalukya and Chola dynasties of the 11th century A. D. The coins, described by Mr. Fleet, would seem to be the máphas of the Mádalá Pánji. The difference of 4 to 5 grains is due partly to wear and tear, but chiefly to the fact that fanams, which formed the unit of measurement, were generally in actual weight 6.5 to 6.75 grains.

That a coin approaching to 70 grains in wt., was in use in S. India is apparent from the contemporaneous Muhammadan records. 'Aláuddín Muhammad Sháh was the first to invade the Deccan, and according to Mír Khusrú, he contemplated the introduction of a new coin of 140 grains, a weight exactly double the standard weight of a mápha § His successor Muhammad bin Tughlaq, who transferred the capital from Delhi to Daulatábád (Doogir) in the Deccan, actually issued a silver coin of a standard weight of 140 grains.|| Then again I find that 'Aláuddín before his installation distributed "5 máns of star gold" daily, and bribed some of the Máliks and Amírs to the extent of 50 máns of gold each.¶ Ferista mentions that Málik Káfur's plunder amounted to 96,000 máns of gold.\* These máns are evidently misspelt for máphas, for 96,000 máns of gold is an amount too preposterously enormous for such a rare metal as gold.

So far as I see, therefore, the proportions were as follows :—

1.75 grains = 1 rati

7 " = 4 " = 1 fanam or chinam.

70 " = 40 " = 10 " = 1 mápha (? varáha)

560 " = 320 " = 80 " = 8 " = 1 pala.

In course of time, the Gangavamśa dynasty was superseded by the

\* See the list given by Sir W. Elliot in *Thomas' Chronicles*, p. 170, note 1.

† See his remark in *Thomas' Chronicles*, note 2 to page 223.

‡ *Indian Antiquary*, Vol. XIX, 1890, page 70 et seq.

§ *Tárikh 'Alái* of Mír Khusrú, quoted in *Thomas' Chronicles*, pp. 158-9 note 1, and p. 247, note 1.

|| Coins 180, 181 and 182 of silver, pp. 213 and 214; half coin of brass No. 199, p. 250 of *Thomas' Chronicles*. Also Firnz Shah's coins, Nos. 228 to 233, pp. 275-6.

¶ *Thomas' Chronicles*, page 157 and note 1.

Brigg's translation, I, 374.

Gajapati Súrjavamśa dynasty. Its founder was Gajapati Kapīśvar Deva, and it is lasted from 1434 to 1535 A. D. or thereabout. During this time the mágha coins diminished in weight to 61 grains. The reason is not clear, but the dearness of gold probably played some part in it. The fanams must have similarly diminished in weight. The gold coins described by Mr. Bidie are 60·24 and 60·75 grains.¶ Other coins of similar nature have been given in Mr. Wilson's "Description of select coins."\*

In 1568 A. D., Orissa was conquered by Kalápahár the general of Sulaimán Qirání, king of Bengal.† With this conquest, Orissa again became connected with Northern India, and the local coins were replaced by the mohurs and tankahs of Delhi. Regarding them, I need not trouble my readers.

From gold I come to silver. No silver coins of Orissa are to be found. Ferishta says that there was no silver coin in the Deccan.‡ Silver must however have been used for ornaments &c., though probably sparingly. The Mádlá Páují enumerates several silver ornaments and utensils. The measures of silver were the same as those of gold.

Much discussion has taken place about the ratio of gold to silver. This ratio differed in different times. The first extract (see *supra*) shows a ratio of 1 : 5 at the time of Ananga Bhíma Deva. This is the lowest ratio for gold that I know of. But it is by no means improbable. Gold was plentiful in Orissa, nay, in the whole of the Deccan. In the upper beds of the rivers Mahánadí, Baitarní and probably of the Rishikulya, gold is still found,\* though in small quantities. The Malabar, and the Nilgiris, particularly the district of Wainad are noted for their gold mines. While therefore gold was comparatively abundant, silver was dear on account of the difficulty in communication with North India, the home of Indian silver. Silver was so dear that no coins of that metal were issued in the mediæval period. I am not surprised, therefore, to see the value of gold fallen to 1 : 5. No better illustration of the abundance of gold can be given than the fact that the spoils alone of 'Aláuddín and Málik Káfur from the Deccan reduced the ratio of gold to silver in North India from 1 : 10 to 1 : 8 and then to 1 : 7.†

¶ Journ. As. Soc. Beng., Vol. LII, Pt 1, No. 1, page 40.

\* Asiatic Researches, Vol. XVII, p. 593.

† The year of conquest has been fixed with accuracy as 1568 A. D. See Dr. Hunter's note to page 10, Vol. II, and Mr. Beames' article in this Journal, Vol. LII, p. 283 note.

‡ Brigg's translation, Vol. I, p. 374.

\* Statistical Accounts of Bengal.

† Thomas' Chronicles, page 235.

From silver to copper is an easy descent. No mention of copper coins is to be found in the Mādālā Pāñji. Most probably in Orissa, such coins were not used in ordinary transactions. Their place was taken by the time-honoured cowries.

The cowries were counted by numbers, which were the same before as now.\*

4 cowries	=	1 gunda			
20 "	=	5 gundas	=	1 búrí	
80 "	=	20 "	=	4 "	= 1 pan
1280 "	=	320 "	=	64 "	= 16 " = 1 káhn.

In the Mādālā Pāñji the accounts of Ananga Bhíma Deva are given in márfas, and no mention of cowries as units is to be found. This continued as long as the Gangavamśa dynasty lasted, for I find, that in the copper-plates of Nṛsiṃha Deva IV, the márfas are given as equivalents. With the advent of the Gujapati Sūryavamśa, cowries became the units, and their gifts appear to have been calculated in cowries and silver tankahs.

कडकौ मुल अवदान त १९२॥० त १ का न खेबार का १५४०

"The original gift in cash Rs. 192-8 or at the rate of 8 káhnas per rupee = 1,540 káhnas."

See also No II of the left side inscriptions at Jaybijay door of the Jagannáth temple:—"paddy 500 bharaus, cowries 2000 káhnas."

While the measures of cowries have remained the same, the ratio of them to other measures of the currency did not remain the same. The following shows the various proportions between coins and cowries, reduced to one common standard for facility of comparison.

I. In the Lilávati completed by Bháskaráchárya in 1150 A. D.†

16 panas (of cowries)	= 1 bharmā of silver	} ‡
16 bharmas	= 1 nishka of silver	

∴ 1 nishka = 16 káhnas, and 1 bharmā = 1 káhn.

Colebrooke adds that the comparative value of silver, copper and shells was nearly the same then as in his time, viz., 4 káhnas per rupee.

N. B.—If these bharmas be identical with Purāṇas, the average weight of which was from 50 to 54 grains,§ then

1 modern rupee = 165 grains of pure silver =  $\frac{165}{100} = 3\frac{3}{10}$  bharmas or  
=  $3\frac{3}{10}$  káhnas.

\* 'Ain-i-Akbari, Gladwin's Translation, Vol. II, p. 16.

† R. C. Dutt's *History of India*, Vol. III, p. 379.

‡ Colebrooke, in *Asiatic Researches*, Vol. V, p. 91. Quoted in Prinsep's *Indian Antiquities*, Vol. I, p. 211.

§ Thomas' *Ancient Indian Weights*.

II. In the time of Ananga Bhīma Deva. (The latter part of the 12th century A. D.)

गार प १ कउड़ी का १८१२५० दाण र कउड़ी का १५ दाणकु यीती हुना ना १ इ  
जेवार ना १८०५० इ ।

"Total of the two cowries 281250 káhans. At the rate of 15 káhans per one mápha of jiti gold = 18750 máphas."

$$\begin{aligned} 1 \text{ mápha of gold} &= 5 \text{ máphas of silver} \\ &= \text{about 350 grains of silver} \\ &= 15 \text{ káhans of cowries} \end{aligned}$$

$$\begin{aligned} \therefore \text{a rupee of 165 grains (pure silver)} &= \frac{165 \times 15}{350} \text{ káhans.} \\ &= 7\frac{1}{2} \text{ káhans.} \end{aligned}$$

III. In the time of Purushottama Deva (1470—1497 A. D.)

$$1 \text{ tankah} = 8 \text{ káhans.}$$

This tankah is probably one of the Bahmaní kings, described by Thomas.\* Thomas does not give the weights, probably because the weights were nearly the same as those of the contemporary Delhi kings. Only one, I find, is stated to have been 165 grains.† The pure silver would not have been more than 160 grains in these tankahs,

$$\begin{aligned} \therefore \text{a rupee of 165 grains} &= \frac{165 \times 8}{160} \\ &= 8\frac{1}{4} \text{ káhans.} \end{aligned}$$

IV. 'Ain-i-Akbari of Abul Fazl (1590 A. D. circa)‡

$$1 \text{ rupee} = 10 \text{ káhans.}$$

Akbar's rupee was of pure silver nearly and 175 grains in weight,§

$$\begin{aligned} \therefore \text{a rupee of 165 grains} &= \frac{165 \times 10}{175} \\ &= 9\frac{3}{5} \text{ káhans.} \end{aligned}$$

VI. In the time of Gopinátha Deva (1726 A. D.), an owl sat upon the crown of Jagannáth accidentally. A purificatory bath with *yajña* had to be performed in consequence. The Mádala Pánjí gives details from which it appears that in the bazar

$$1 \text{ tankah} = 2 \text{ káhans } 2 \text{ pans of cowries.}$$

But in the account one tanka was calculated at 2 káhans, 3 pans. Taking the higher value, I find

$$\begin{aligned} 1 \text{ tankah (of the Mughal emperors)} \\ &= 175 \text{ grains} \end{aligned}$$

\* Thomas' *Chronicles*, pp. 342, 346.

† Thomas, *ibid*, p. 342.

‡ Gladwin's Translation, Vol. II, p. 15.

§ Prinsep's *Useful Tables*, Vol. II, p. 22 (Ed. Thomas).

$$\therefore 165 \text{ grains} = \frac{165 \times 2 \frac{5}{16}}{175} \text{ káháns}$$

$$= 2 \frac{1}{6} \text{ káháns.}$$

VI. In the beginning of this century (1803 A. D.), the official rate was

$$1 \text{ rupee} = 4 \text{ káháns.}^*$$

VII. The present rate (1891 A. D.) is

$$1 \text{ rupee} = 3 \frac{1}{2} \text{ to } 3 \frac{3}{4} \text{ káháns,}$$

being at the rate of 16 to 18 gundas per pice.

A glance at these figures will show that the cowries became cheaper and cheaper, till we come to the beginning of the eighteenth century. Then, all on a sudden, they became dearer, extraordinarily dearer, if the *Mádalá Pánjí* is to be believed. After some time, the value of the cowries fell to 4 káháns. At present the copper pices have driven them from the field. In the mofussil, cowries are now used only for fractions of pices and annas.

I conclude this brief essay with an estimate of the income of the Orissa kings as given in the *Mádalá Pánjí*. Ananga Bhíma Deva, the most celebrated monarch of the Gangavamsa, is said to have issued a mudul (royal order), reported in *extenso* in the aforesaid Chronicle. In that mudul he is made to say :—

“My predecessors beginning with Kesari kings had an income of 1,500,000 márhas in jítí gold; I extended my kingdom and added an income of 2,000,000 márhas in jítí gold; my total income is 3,500,000 márhas.”

(Abridged translation.)

$$\begin{aligned} 1,500,000 \text{ márhas of gold} &= 7,500,000 \text{ márhas of silver} \\ &= 525,000,000 \text{ grains of silver} \\ &= \frac{525,000,000}{165} \text{ modern rupees} \end{aligned}$$

or 3,181,818 Rupees

Similarly 3,500,000 márhas of gold

$$= \text{Rs. } 7,121,212.$$

Dr. Hunter estimates the first income at Rs. 4,602,500† or nearly 50 per cent. more; but, if my reasonings be correct, neither his measures of gold, nor his ratio of gold to silver, can be accepted. In fact he himself has expressed some doubts about their validity.

\* Dr. Hunter's *History of Orissa*, Vol. I, note 337.

† *Ibid.*, Vol. I, note 309.



*Græco-Roman Influence on the Civilization of Ancient India. Second Paper.*—By VINCENT A. SMITH, M.R.A.S., BENGAL CIVIL SERVICE.

## PART I.

While my essay on 'Græco-Roman Influence on the Civilization of Ancient India,' published in Part I of this Society's Journal for 1889, was passing through the press, two important papers bearing on the same subject appeared, one in France, the other in Germany. I propose to give in this communication some account of the papers referred to, and to discuss the views of the writers, especially when they differ from those which I have advocated.

The French essay is written by Mr. E. Senart, and is entitled 'Notes d'Épigraphie Indienne.\*' The veteran Professor Albrecht Weber is the author of the German paper, to which he has given the name of 'Die Griechen in Indien.†

Mr. Boveridge, our President, in his Annual Address remarked that Professor Weber's discourse "well deserves to be translated." It is beyond doubt a valuable contribution to learning, but I think an abstract account of its contents, accompanied by a discussion of doubtful topics, will be of more interest to the Society than a formal complete translation.

Professor Weber concentrates his attention almost exclusively on the literary monuments of ancient Indian civilization, and devotes only a few lines to the subject of Hellenistic influence on the architecture, sculpture, and numismatic art of India. (pp.  $\frac{16}{912}$   $\frac{17}{913}$ ).‡ He laments the want of works dealing more fully with these topics. I trust that I may, without presumption, claim to have partly supplied this want.

In a much discussed passage of the Mahābhāṣya, which mentions that the avaricious Maurya king offered for sale the images of the gods, he is inclined to see the first reference in Indian literature to coined money. But this is a very dubious and far-fetched notion.

The remarks on the words *Dramma*, δραχμή, and *dīnāra*, δηνάριον, are worth translating in full.

"The words *dramma*, δραχμή, and *dīnāra*, δηνάριον, in the special sense of silver and gold money respectively, remained in use as late as

\* Extrait du Journal Asiatique, III. Paris, Imprimerie Nationale, MDCCCXC.

† Sitzungsberichte der Königlich Preussischen Akademie der Wissenschaften zu Berlin. XXVII, 1890; Sitzung der philosophisch-historischen Classe vom 17 Juli.

‡ In the references to Professor Weber the upper number indicates the page of the reprint, the lower that of the *Sitzungsberichte*.

the fifteenth century A. D., or possibly even later. According to a friendly communication of Mommsen's, the borrowing of the word *δηνάριον* itself (always neuter) from the Latin *denarius* dates at the earliest from the time of Cæsar and Augustus, who first introduced a gold coinage current throughout the empire, which was therefore designated by a Latin word, commonly *aureus*, though the term *denarius aureus* is also used.

The transference of the word *dīnāra* to India, and the introduction of it into Indian literature can hardly have taken place so soon, and we may well assume another century approximately as necessary for such introduction. From this the inference follows that no Indian work in which the word *dīnāra* occurs can be older than the second century of our era."

The Gupta inscriptions show that the use of the word *dīnāra* for certain gold coins was well established by A. D. 400. and suggest that the *dīnāra* was distinct from the *suvarṇa*.\* I have elsewhere stated my belief, which I am still inclined to hold, that the term *dīnāra* in Gupta times was restricted to the coins which followed the weight standard of the Roman *aureus* *denarius*, based on the Attic stater of 134·4 grains, and that the term *suvarṇa* designated the heavier gold coins struck to the native standard of 80 *ratīs*, or 146 grains.†

Sānchi inscription of Chandra Gupta II, dated 93 = A. D. 412-13;

Gadhwa ditto ditto , dated 88 = A. D. 407-08;

Ditto ditto Kumāra Gupta, (No. 8), date lost,

Ditto ditto ditto (No. 9), dated 98 = A. D. 417-18.

Sānchi ditto ditto, or Skanda Gupta, dated 131 = A. D. 450-51.

Gadhwa ditto ditto (No. 64), date lost.

"Lines 7 to 12 (*scil.* of this last inscription) appear to have recorded certain grants fixed in *dīnāras*, for the purpose of providing food in a *sattra* or almshouse, and also to provide pairs of upper and lower garments ..... The second part, again, refers to food in an almshouse, recording something in connection with it at a cost of nineteen gold coins of the kind called *suvarṇa*." (*Fleet, Corpus Inscr. Ind. Vol. III, pp. 33, 38, 39, 40, 41, 262, 265.*)

† The Coinage of the Early or Imperial Gupta Dynasty of Northern India (*J. Roy. As. Soc. for 1869, Vol. XXI, N. S., p. 43.*)

The jurist Brihaspati is, however, against this supposition. He says:—

14. A Nishka is four *suvarṇas*. A *Paṇa* of copper is a *Kārshika* (having the weight of one *Karsha*.) A coin made of a *Karsha* of copper has to be known as a *Kārshika Paṇa*.

15. It is also called *Andikā*. Four such are a *Dhānaka*. Twelve of the latter are a *Suvarṇa*. This is also called a *Dīnāra* (*denarius*).<sup>4</sup> (*Brihaspati, X, 15, 15 in 'Minor Law Books, Nārada and Brihaspati,' translated by Jolly being Vol. XXXIII of the Sacred Books of the East, page 317.*) I do not doubt the accuracy of Brihaspati's statement, but it can perhaps be interpreted to mean that both a *suvarṇa* and a

It is interesting to observe that etymologically the word *δραχμή* ("from *δράσσομαι*, and so, strictly, as much as one can hold in the hand," L. and S.) is the equivalent in meaning of the Indian *pāṇa*, पाण, (akin to *pāṇi*, पाणि, 'hand'), which originally meant 'a handful of cowries.' (Cunningham, *Archæol. Reports. Vol. X, p. 78*).

I may also be permitted to call attention to the fact that the limiting anterior date determined as above for the transfer of the Latin word *denarius* to India is the date which I have independently fixed as that from which strong Græco-Roman influence on Indian art can be traced.

Leaving for the present Professor Weber, I shall now turn to the essay of Mr. Senart, which is principally concerned with the stone remains of the Kábul River valley, or Gándhára, the chief subject of my former disquisition.

Mr. Senart's paper is divided into two parts, the first of which deals with inscriptions in the Arian (Gándharian, Kharoshtrí) character, and the second with sculptures recently obtained by Captain Deane from excavations at a place called Sikrî, near the well-known site of Jamál-garhí.

The observations of the distinguished French scholar mark a great advance in the interpretation of the Arian inscriptions, though much still remains obscure. He gives facsimiles in photo-type from paper casts of three inscriptions, all in the Lahore Museum, *viz.*, (1) that from Takhti-Bahi, (2) a short one from a locality not known, and (3) the Zeda record, and offers readings and interpretations, more or less complete, of all three, besides remarks on several other connected documents.

It is satisfactory to learn that there is no doubt that the Takhti-Bahi inscription is really dated in the year 26 of king Guduphara (Gondophares), and in the year 103 of an era the initial point of which is still undetermined.

*dín-dra* had the same subdivisions, and, in any case, whatever may have been the usage elsewhere, the writer of the inscription at Gadhwá must surely have considered the *suvarṇa* and *dín-dra* to be different, or he would not have distinguished them. Nárada (*ibid.* page 231) writes to the same effect as Brihaspati.

Nárada probably wrote in the fifth or sixth century A. D., (*ibid.* page XVIII); and Brihaspati in the sixth or seventh century A. D. While these pages have been passing through the press, a valuable little work by Sir A. Cunningham, entitled 'Coins of Ancient India' (Quaritch, 1891), has appeared. The earliest Indian coins and metric systems are there discussed. I have above, as in my previous publications, reckoned the weight of the *ratí* to be 1·825 grain, and that of the *pāṇa*, *karsha*, and *Suvarṇa* as 146 grains. Sir A. Cunningham now uses 1·8 and 144 respectively, as the elements of his calculations. He used to follow Thomas in his erroneous estimate of the weight of the *ratí* as 1·75 grain. The figures 1·8 and 144 are very convenient.

In connection with this inscription, which records the presentation of a votive offering, Mr. Senart discusses the varieties and development of Buddhist votive formulas. He is inclined to think that the later and fuller forms were imitated from Græco-Roman formularies. This particular manifestation of western influence on India has not, I think, been previously noted, and I therefore quote in full the passage in which the theory is broached.

"En somme, c'est au Nord-Ouest que commencent les formules votives développées, elles affectent un caractère qui ne s'explique pas bien par le jeu naturel des idées natives.

Est il nécessaire d'admettre que l'imitation des formules épigraphiques de l'Occident ait contribué à les faire adopter ?\*

A cet égard, une double particularité me frappe dans nos deux dédicaces indo-bactriennes. L'une et l'autre affichent en bonne place un souci particulier de la 'santé,' de la 'prosperité' du roi et de sa famille. Le trait est si peu indou qu'il ne se retrouve, que je sache, nulle part dans l'Inde intérieure ; il est si bien entré ici dans les mœurs qu'il se perpétue jusqu'à une époque assez basse : l'inscription de Kurra, datée du règne de Toramāna, au V<sup>e</sup> siècle, le reproduit encore.

Comment ne pas songer aux vœux si fréquents dans les épigraphes gréco-romaines 'pour le salut des empereurs' ? Le mot *agrabhaga*, que j'ai traduit par 'prosperité,' et qui ne peut guère, d'après le contexte, s'éloigner de ce sens, constitue une locution spéciale dont l'usage n'est pas consacré par la littérature. Ne semble-t-il pas révéler la recherche d'un terme approprié pour cette idée de 'fortune,' qui sort quelque peu de l'ordre des notions familières à l'esprit Indien ? et ne représenterait-il pas un essai de traduction directe ou indirecte de l'*ἀγαθὴ τύχη* du grec ?

On me pardonnera d'avoir, en passant, signalé cette impression. Je sens de combien de réserves il convient d'entourer de pareilles conjectures."

The conjecture seems to me highly probable. It may be remembered that several years ago I traced in the devices of the Gupta coinage reminiscences of the Greek *ἀγαθὴ τύχη* and her representative the Roman Fortuna.

While on the subject of Roman influence on the form of Indian inscriptions, I may note another conjecture which has occurred to me, namely, that the well known Indian practice of inscribing a record on several plates of copper joined by a ring may very likely have been

\* Il est superflu de rappeler ici les expressions très-variées de ces vœux de santé, de bonheur, qui accompagnent tant de dédicaces grecques et latines. On en trouvera des énumérations plus ou moins complètes dans les traités d'épigraphie.

borrowed from the Romans. "Inscriptions on bronze tablets sometimes occur. These are *tabule honestæ missionis*, diplomas, or good conduct discharges. They are copies of decrees, promulgated at Rome, conferring upon the soldiery, as a reward for distinguished service, the privilege of Roman citizenship and the right of marriage. They seem to have been usually inscribed on two sheets of metal, which, being united by thongs, folded together like a book. Examples of these tablets have been found from the year A. D. 34 of the Emperor Claudius to the year of the Emperor Maximian, A. D. 300. They were invariably suspended on the walls of the temple in the Capitol for public exhibition."\*

Mr. Senart devotes several pages to the consideration of the dated Hashtnagar inscription first published by me in the *Indian Antiquary* for 1889, and to a discussion of the era used in it and other inscriptions from the same region. The subsequent publication in this *Journal* of a photograph of the inscribed pedestal from Hashtnagar will, I think, remove the doubts which Mr. Senart felt as to the presence of the symbol for 100. He was inclined to read the date, as shown in the rougher facsimile of the *Indian Antiquary*, as being 84 only, but it is certain that the date is either 274, as formerly read by Sir A. Cunningham, or 284. The character preceding the 4 is certainly almost identical with each of the three characters for 20 which precede it, and so may be read also as 20, but it is not absolutely identical, being slightly straighter and narrower in shape, and this minute difference may be held sufficient to warrant us in reading it as the symbol for 10. So far as the historian is concerned it makes little matter whether the date is 274 or 284, but I think it more probable that 274 is the correct interpretation.

I altogether disagree with the opinion of Mr. Senart that "*nous sommes forcés d'admettre que l'alphabet du Nord-Ouest, dans lequel est gravée l'inscription, était, au milieu du IV<sup>e</sup> siècle, dès longtemps hors d'usage.*" But on this question I have nothing to add to what I have already printed, nor have I anything to retract.

Mr. Senart makes an important correction in the reading of the inscription by substituting *praushthapada* for *emborasma* as the name of the month.†

\* Westropp, *Handbook of Archaeology*, p. 500, 2nd<sup>d</sup> edition, Bohn's Illustrated Library, 1878.

† In 'Coins of Ancient India' (Quaritch, 1891) Sir A. Cunningham incidentally (page 37) accepts Mr. Senart's reading of the date as 84. But the figures for the centuries are certainly in the record. Dr. Bühler reads "Saṃ II C XX XX XX X IV Postavadasa masasa di[va] saṃmi paṃ[cha]mi 5 [11\*]", and translates "The year 274, on the fifth, 5, day of the month of Praushthapada (i. e., Bhādrapada or August–September)." He observes that in the name of the month the reading

I should have mentioned that there are a few scratches or imperfect characters on the stone below the inscription, but these do not seem ever to have had any meaning.

I was inclined to refer the date 284 or 274 to the Saka era of A. D. 78 rather than to that of Gondophares and Moga (Mañas), chiefly on account of the inferiority of the style of the figures on the pedestal as compared with that of the best Romano-Buddhist sculpture.

But, when discussing the remarkable statuette of the Emaciated Buddha of which he gives a plate, Mr. Senart points out (*note*, p. 43) that the execution of the principal figure is far superior to that of the minor figures of the relief on the pedestal. "À cet égard, on remarquera l'écart qui s'accuse entre la figure principale et le bas-relief qui décore le socle, et qui est traité assai sommairement, sans doute comme une scène conventionnelle multipliée en nombreuses répliques par des artistes inférieurs. Il y'a là un avertissement qui ne doit pas être perdu pour ceux qui s'attacheront à établir la série chronologique des ouvrages gréco-buddhiques."

The observation is perfectly correct, and I readily accept the warning. I am quite willing to admit now that the era of either Gondophares or Moga is most likely that in which the Hsastunagar pedestal is dated, and that its approximate date is therefore about A. D. 220 or 230. Very probably the principal statue, which Mr. King was unable to appropriate, was executed in a style much superior to that of the pedestal. On this supposition the work is contemporary with the Jamálgarhi sculptures, and my arguments concerning the date of those remains are strongly confirmed. My approximate date for the best sculptures at Jamálgarhi is A. D. 250.

It is still uncertain whether the eras used by Gondophares and Moga are identical or different. Mr. Senart (p. 19) shows that the mode of expressing the date in the Taxila inscription, namely, "in the year 78 of the great King Mogas," does not imply that the era used was founded by that sovereign. "Rien n'est moins vraisemblable. Il suffit de se reporter aux épigraphes de Mathurá (par exemple nos 1, 4, 6, comparés à 2, 4, 7) pour se convaincre que le nom du roi ajouté, au génitif, à l'indication de l'année n'implique ni que la date donnée se réfère à une ère fondée par lui, ni qu'elle ait pour point de départ le commencement de son règne. Comme, d'autre part, quand un nom de roi est indiqué, il marque régulièrement le souverain régnant, il faut

*poshavadasa* is linguistically possible. (*Indian Antiquary* for Nov. 1891, Vol. XX, page 394). Sir A. Cunningham now calls the Arian alphabet by the name Gandhari-an, which is, I think, the best of the many names more or less current.

certainement entendre notre date; 'I' an 78, sous le règne du grand roi Moga.' L' imitation des formules grecques par le génitif absolu *βασιλεύοντος* ou *τυραννοῦντος*, etc., explique suffisamment, par l' influence naturelle du monnayage, ce que la locution pourrait au premier aspect avoir de surprenant."

The last observation calls attention to yet another case in which Indian practice has been affected by Greek example.

Following Sir A. Cunningham, I described (*page 142*) in my former paper a brief record at Jamālgarhi as "seven unintelligible letters, read as *Saphaṇḍanamukha*, incised on the back of the nimbus of one of the statues supposed to be those of kings." Mr. Senart (*page 24*) shows that the correct reading is *saphalaḍanamukha*, "c' est à dire 'don méritoire.'" This word *danamukha* is unknown in literature, but occurs in the inscriptions on the Bhimaran vase and the Manikyāla cylinder. Mr. Senart is unable at present to decide whether or not the word *dānamukha* implies a shade of meaning slightly different from that of the simple *dānam*, and contents himself with noting (*page 26*) that in the inscriptions where the longer expression occurs it is not accompanied by the name of the gift in apposition, like *dānam thambho*, *thāpo dānam*, etc.

Pages 27-31 of his paper are devoted by Mr. Senart to the discussion of the Zeda inscription. He is unable to give a complete translation of this record, but it is satisfactory to find that it is certainly dated in the year 11, in the reign of Kanishka, as deciphered by Sir A. Cunningham.

The short record, which is numbered II by Mr. Senart, is also a votive inscription, and, subject to certain reservations, is thus translated (*page 27*); "An 68, le seizième (16) jour du mois Praushthapada. Don de...vadhitrana et de ses compagnons."

It is not known to what object it was attached, but doubtless it was a sculpture of some sort. The era is, of course, also undetermined. If it is that of Kanishka, the date would be  $78 + 68 =$  A. D. 146. If it is that of either of Moga or Gondophares the date would be about A. D. 20. Either date is quite possible, but, if the earlier one is correct, we may be quite certain that the sculpture showed no trace of Roman influence, though it may have been Hellenistic in style.

The two statuettes from Sikri of which M. Senart gives excellent phototype plates are both well executed, and seem to belong to the best period of the Gāndhāra school.

The first represents the Buddha seated, reduced to a state of extreme emaciation by the austerities which he practised in the first stage of his religious life. Mr. Senart cannot remember having seen any other ancient representation of the Buddha in this condition, but notes (*page*

33) that the Musée Guimet contains three modern figures of the emaciated Buddha. One of these is a fine Chinese bronze attributed to the last century. The others come from Japan, one being in wood, and the second in bronze, and are supposed to date respectively from the sixteenth and seventeenth centuries. All three represent the Buddha in a standing posture.

The second statuette figured is that of a woman standing, carrying on each shoulder a small standing figure, and suckling an infant, which sits astride, Indian fashion, on her right hip. The interpretation of this group is as yet unknown. Mr. Senart conjectures that the small figures on the shoulders may be intended to mark the divine rank of the principal figure, and that they are offering her a diadem or garland. Probably the woman is Māyā, the mother of the Buddha. The comparison with images of the Madonna Lactans is obvious, and is of interest when considered in connection with the numerous cases of resemblance between Buddhist and Christian works which I have cited.

The last twenty-one pages of Mr. Senart's essay are devoted to a discussion of the date of the Gāndhāra sculptures. His view is substantially the same as that advocated by Sir A. Cunningham (*page 149 of my former paper*). The following passages express Mr. Senart's general conclusions :—

“Il est fort possible que la tradition de l'architecture et de la sculpture gréco-buddhiques se soit au Nord-Ouest continuée pendant une période plus ou moins longue. Un point cependant doit être considéré comme établi, c'est que la période de floraison et de grande expansion de cet art est antérieure à la seconde moitié du II<sup>e</sup> siècle ; que, dès cette époque, l'évolution dont il a été l'initiateur dans l'iconographie buddhique était achevée, consacrée. Il serait dès lors bien arbitraire en dehors de preuves positives qui n'ont point été produites, de ramener à une époque plus basse les monuments principaux qui nous en sont parvenus, ceux surtout qui paraissent les plus caractéristiques et dont l'aspect est relativement ancien,” (*page 42*).

The date of the statuette of the Emaciated Buddha is decided to be “not later than the end of the first century A. D.” (*page 44*).

“Pour la date, la première moitié du II<sup>e</sup> siècle paraît marquer le moment où l'imitation a été la plus active, et il n'y a aucune probabilité qu'elle se soit prolongée très-longtemps au delà. Si elle s'était exercée à une époque plus tardive, postérieure à la grande floraison du buddhisme sous Kanishka et Havishka, il est à penser qu'elle ne serait pas si exactement circonstrite dans l'art Buddhique” (*page 52*).

When the passages quoted were written Mr. Senart had not seen my paper on the subject, and I shall therefore abstain from discussing



his views at length, and content myself with the observation that in my opinion he has been misled by his failure to perceive the Roman characteristics of the greater part of the Gándhára sculptures. He refers, certainly, to Fergusson's brief remarks on this topic, but dismisses them as being of little weight. To my mind, on the other hand, the strong Roman influence on the Gándhára school seems to be an obvious, palpable fact that cannot be ignored.\*

Mr. Senart seeks in Parthia, not in Rome, for the special variety of Hellenistic art which supplied the model to the Gándhára sculptures.

"Au commencement du I<sup>er</sup> Siècle avant J. C., le retour offensif d'influences occidentales représentées par le philhellonisme des Arsacides, et maintenues par la création de la dynastie parthe particulière à cette région expliquerait l'établissement d'une sorte d'école pénétrée des traditions classiques; à la fin du I<sup>er</sup> siècle après J. C., l'établissement de la puissante dynastie de Kanishka, tributaire au point de vue de la civilisation de ses voisins de l'Iran, marque le moment où, sur la base la plus large qu'eût jamais conquise dans l'Inde une race étrangère, cette école gréco-parthe a pu le mieux propager son influence dans l'intérieur du pays" (page 48).

I cannot discover in the Gándhára sculptures any distinct trace of Parthian influence, though the Persepolitan form of capital which is seen in some of the earlier works is, of course, a proof that the artists of the Gándhára school were naturally not ignorant of the art of Persia.

## PART II.

Professor Weber opens his interesting essay by the intimation that it is designed to give a cursory view of what is known, partly from certain data, and partly from more or less plausible conjectures, concerning the position and influence of the Greeks in India.

The Greeks are called by Indian authors 'Yavana,' that is to say Ionians. This word seems to have been introduced through Persia, and has been successively applied to the Greeks, Indo-Scythians, Parthians, Persians, Arabs (or Muhammadans), and, finally, to Europeans.

[The use of the word is in fact analogous to the modern use of 'wildyat,' which includes Europe as well as Afghánistán, and other countries on the North-West frontier. V. A. S.]

The oldest mention of the term 'yavana' is found in the grammar of Páṇini (4, 1, 49), who is now generally supposed to have flourished

\* Mr. Ed. Drouin informs me that both he and Mr. Silvain Lévi agree with me in the opinion that "the Roman element had a real influence on the sculptures of the northern schools."

about the beginning of the third century B. C. He teaches the formation of the word 'yavanáni' to indicate the writing (*lipi*) of the Yavana.

[The jurist Gautama (*IV. 21; page 196 of Bühler's translation*) enumerates Párasavas, Yavanas, Karaṇas, and Súdras together. His date is probably as early as that of Páṇini. V. A. S.]

The well known passage in the thirteenth edict of Aśoka which mentions the Yona (Yavana) kings, Antiochus, etc., is, of course, the earliest historical reference to the Yavanas, the date of which is certain.

Some scholars have discovered the name of Alexander in the Kálsi version of the edicts, but the reading is doubtful.

A distinct trace of the name of the great conqueror is found in the appellation of the city Alasaddá, or Alasanda, mentioned in the Mahávansa and the Questions of Milinda. This name is obviously identical with Alexandria. Some have supposed the city to be situated on the Indian Caucasus, or Hindu Kush. [But it would seem rather to have been situated on an island in the Indus, if we may trust the author of the Questions of Milinda.

"The Elder replied: 'In what district, O king, were you born?'"

'There is an island called Alasanda. It was there I was born.'

'And how far is Alasanda from here?'

'About two hundred leagues.....'

'In what town, O king, were you born?'

'There is a village called Kalasi. It was there I was born?'

'And how far is Kalasi from here?'

'About two hundred leagues.'

'How far is Kashmír from here?'

'Twelve leagues?'

Professor Rhys Davids is inclined to think that the town of Kalasi is identical with the 'Karisi nagara,' which seems to be mentioned on a coin of Eukratides (*acc. circa B. C. 190*) and that the coin was struck in commemoration of the fact of the Greeks having reached the Indus.\* If the coin is rightly read, this conjecture seems extremely probable, but, unfortunately, the legend quoted is only "the conjectured reading of General Cunningham." (*Gardner, Coins of Greek and Scythic Kings, page 19, note, and Plate VI, 8*).

Professor Weber next proceeds to argue in favour of a highly conjectural theory connecting the name Skanda with Alexander, but I think my readers will excuse me from reproducing his very unsatisfactory arguments. V. A. S.]

\* "The Questions of King Milinda," translated from the Páli by T. W. Rhys Davids, being Vol. XXXV of Sacred Books of the East, pp. XXIII and 128.

Āpīsali, one of the teachers cited by Pāṇini, speaks of the formation of the compound 'Kṣhaudraka—Mālava' (*scil.* 'senā), 'the army of the Kṣhaudrakas and Mālavas,' the 'Οξυδράκοι and Μάλλοι of the Greek historians. Inasmuch as we are told by them that these two peoples were at bitter enmity with one another, and only combined from fear of Alexander, it is possible that the grammarian may have had in his mind the invasion of Alexander. If this supposition is correct, both Āpīsali and his disciple Pāṇini must belong to a period later than that of Alexander.

The Sauvīra city Dāttamītri seems to be Demetrias; and the Sauvīra names Phāṇṭāhṛiti, Mimata, and Jamunda mentioned by Pāṇini (4, 1, 148, 150) and his scholiast, suggest the Greek names Pantarchos, Mimas, and Diomedes.

The Greek name Ptolemaios or Ptolemy appears in Aśoka's edict under the easily recognized form Turamaya, but it seems also to have been adopted by Hindu literature and mythology under the form Asura Maya, and with a double signification. In the second book of the Mahābhārata Asura Maya, the architect of the Asuras, appears as the friend of king Yudhisṭhira, and builds for him a palace, the marvels of which excite general wonder and astonishment. This Asura Maya seems to me to be an appropriation by means of a popular etymology of the name Turamaya, and his skill as an architect appears to refer to the buildings of the Ptolemies, or even to the wonderful buildings of ancient Egypt. Another circumstance lends support to this supposition. A second application of the name Asura Maya is that which occurs in the extant, though certainly secondary, text of the Sūrya-Siddhānta (1, 2), where he appears as the father of Indian astronomy. In this case, of course, there is no reference to king Ptolemy, but the person meant is the astronomer of the same name who flourished in the first half of the second century of our era.

It is to be observed that on both occasions the name entered India through the medium of the same mythical personality.

In the Jnānabhāskara, the astronomer Asura Maya is placed in connexion with Romakapura, which must mean either Alexandria or Byzantium, or, more generally, the lands of the barbarians (*mlechchha*). The eighth book of the Kathāsaritsāgara tells of the conquest of the gods under the command of Indra by the Asuras under the leadership of Maya. The terms Dānava and Asura must often be understood to mean foreign peoples.

[It may be remembered that I have suggested (*page 133 of my former essay*) that the whole conception of the Asuras and their conflicts with the gods was borrowed from the Greek legends of the Gigantomachia. The myths above referred to seem to give support to my conjecture. V. A. S.]

Other Greek names also may be recognized in the Hindu epics.

Tod long ago identified the Yavana king Dattāmītra, who is described in the Mahābhārata as taking a direct part in the struggle, with the Bactrian king Demetrius (*flor. circa* 180–165 B. C.), and this identification was accepted by Lassen. The city Demetrias built by him appears in the Rāmāyaṇa under the further corrupted form Daṇḍāmītrā, and in a votive formula of Buddhist tendency as Dāttāmītiyaka Yoṇaka. The name of Bhagadatta, the king of the Yavanas who ruled over Māru, or Mārwar, and Naraka in the West and is specially mentioned (*M. Bhār.* 2, 578, 579) as an old friend of the father of Yudhishtīra, has been regarded by A. v. Gutschmid as a translation of the name of the Bactrian king Apollodotus (*flor. circa* B. C. 160), and this supposition appears to me a happy one.

The name of the Kāshmir prince Jalauka, mentioned in the Mahābhārata, may be identified, though not without reserve, as a corruption of Seleucus.

Finally, the name of Menander is certainly represented by that of Milinda, king of Sāgala (Σαγγαλα), who plays an important part in the tradition of southern Buddhism, and was remembered even down to Puranic times. The 'Miliudapanṇa' will be referred to again on a later page.

The allusions to the Yavanas in Pāṇini and the Mahābhāṣhya should be here considered. The teaching of Pāṇini concerning the formation of the word 'Yavanāni' to signify the writing (*lipi*) of the Yavanas has already been referred to. But it seems as if a direct use of the Yavana characters by Pāṇini may be detected.

According to Goldstücker (*Pāṇini*, page 53) he uses the second letter of the Indian alphabet as a sign for the numeral two, and Burnell (*Elements S. I. Palæogr.*, page 96, and *Aindra Grammarians*, page 77) supposes that he was in this passage influenced by the similar use of the letters of the Greek alphabet as numerals.

The characteristic remark in the Calcutta scholium on the passage in 3, 2, 120 *śayānā bhujjate Yavanāḥ*, 'the Yavanas eat reclining,' is of interest. This remark is not found in the Mahābhāṣhya (*see Ind. Stud.* 13, 381), and it clearly rests on an older observation, or rather, tradition.

Two examples given in the Mahābhāṣhya on Pāṇini 3, 2, 111, are of the highest interest, namely, *Yavano 'runan Mādhyamikān*, 'the Yavana prince oppressed the Mādhyamikas'; and *Yavano 'runat Sāketam*, 'the Yavana prince oppressed Sāketa.' These examples are given as illustrations of the use of the imperfect tense to signify an event which happened a short time previously, and therefore show that the oppression

of the Mádhyamika people and of the city of Sáketa must have occurred shortly before the composition of the examples. Unfortunately the geographical position neither of the people or city is ascertained with precision, but Sáketa, the Greek Σαγγδα is probably the modern Ajodhya or Oudh. [Fergusson, however, thought that its site should more probably be sought at Lucknow. It certainly was situated in the province of Oudh. Dr. Führer (*Monumental Antiquities and Inscriptions, N.-W. P. and Oudh*, p. 275) is satisfied that Sanchánkoṭ, or Sujánkoṭ in the Unáo District, on the Sái river, 34 miles north-west of Unáo, represents the ancient Sáketa, the Sha-ohi of Fa-Hian. According to him Ajodhya is the Visákhá of Hiuen-Tsiang, but not the Sha-chi of Fa Hian. V. A. S.] The passage in the Mahábhásha indicates an extension of Greek dominion in the interior of India, which could not be suspected from perusal of the Greek writers. The reality of this extension is further supported by the chapter of the Garga-Samhitá named Yuga-puráṇa, which mentions, not only the occupation of Sáketa by the Yavanas, but their further advance to Kusumadhvaṇa or Pushpapura, that is to say Pátaliputra (Παλιβοθηρα). But it is possible that we should rather suppose the text to refer to the advance of the Indo-Scythians, to whom the name of Yavanas was transferred.

The Garga family, which, notably enough (with the exception of a single passage in the Káthaka), is mentioned first in the latest sections of the Bráhmaṇas and Sūtras, but comes specially to the front in the Mahábhásha (see *Ind. Stud.* 13, 410, *seqq.*), is repeatedly placed by legend in close connection with the Yavanas. Specially, a verse, which honours the Yavanas as teachers of astronomy, is ascribed to Garga.

In order to dispose of all the legendary-historical information concerning the Yavana princes of ancient times which can be extracted from the Mahábhárata, etc., it must here be noted that the Kála-Yavana or 'Black Yavana' is brought into special relation with Krishna and Garga. The name Black Yavana appears intended to distinguish the bearer of it from other kinds of Yavanas.

We must further observe that the Yavana king Kaserumant is shown as occupying a hostile, or more exactly, a subordinate position. I have already expressed an opinion (*Ind. Skizzen*, pp. 88, 91; and *Akad. Vorl. in. L. G.* 205) that the name of this Kaserumant is a reminiscence of the Roman Cæsar, and Mr. Léon Fèr has since shown (*Comptes Rendus de l'Acad. des Inscr.*, 1871, pp. 47, 56, 60), that the expression *Kesara náma saṃgrámaḥ*, 'Cæsarean or Roman order of battle,' occurs in the Buddhist Avadána-sataka. If these passages belong to the period of the great deposits of Roman coins in India they supply a certain legendary back ground for them.

Finally, we must note the prominent position which the Yavanas, in common with the Kambojas, Sakas, Pahlavas, Bahikas, etc., take in the Mahābhārata, as well as in the Rāmāyaṇa, and which is so significant for the determination of the period of composition of these works. The Romakas are also mentioned there, though but rarely.

The city Romakapurn, which plays a special part in astronomical literature (*see above*) should not be understood to mean Rome itself, but Alexandria, or perhaps, Byzantium.

The city Rauma mentioned in the Vishṇu-purāṇa (*Wilson-Hall*, I, 130) must be understood in the same way. A Romaka-siddhānta appears to have been one of the earlier works used by the astronomer Varāha Mihira, who lived between A. D. 504 and 587.

The well-known part which Yavana women play in the dramas of Kālidāsa (who is supposed to have flourished in the middle of the sixth century A. D.) as personal attendants of the king may be in some degree explained by the trade in "good-looking girls for concubinage," which, according to the author of the Periplus, was carried on between Alexandria and India. Samudra Gupta's Allahabad Pillar inscription [*Fleet, Corpus Inscr. III*, p. 14, V. A. S.] mentions the delivery of maidens as tribute by the Sassanian king of Persia, who is there called the Shāhānushāhi. The superior culture and education of these foreign girls may be the explanation of the introduction of certain peculiarities in the attributes of the Indian god of love, Kāmadeva. The chief of these is the dolphin (*makara*) banner which he carries, like the Greek Eros. He is also sometimes described as the son of the goddess of beauty, who, like Aphrodite, rises foam-born from the waters. But this latter myth may be of primitive Indo-Germanic origin, and refer to the dawn. Sometimes he is represented as the consort of the goddess of desire. The ancient image of Aphrodite, accompanied by Eros and the dolphin may be dimly made out in a relief on the temple of Bhuvanēśvara in Orissa, which seems to date from the seventh century of our era; but the form is very degraded in execution.

It is very difficult to understand how the Kinnara, or monkeys in the guise of men and women, can have been turned into 'heavenly choristers,' for even Indian taste can hardly regard the screeching of monkeys as melodious. Perhaps the *kurūpa* used by the Greek maidens at the courts of the Indian princes may be at the bottom of the conception.

[*Kurūpa* was a ten-stringed instrument, and *kurupós* and cognate words mean 'wailing.' The conjecture seems to me a very far-fetched one. V. A. S.]

Another bold conjecture would explain the amended reading '*Kharān*' in the Pāṇiniyā Śikshā, when it is explained to mean the form of

greeting used by the women of Suráshṭra, to be the Greek χαίρειν.<sup>†</sup> This conjecture is supported by the facts that Greek influence lasted late in Suráshṭra, and that in Byzantine inscriptions χαίρειν, written as χῆριν, is used as a salutation formula instead of the imperative χᾶρε.

With reference to the political position of the Greeks in India the direct transfer into Sanskrit and Páli of the words σῦριγξ and χαλῶς in the forms *suruṅgá* (underground passage; mine), and *khalína* (= bridle, rein, especially the bit of a horse's bridle) is of interest.

Merely for the sake of completeness some words may be noticed which occur only in dictionaries. Examples of these are *yavanapriya*, 'pepper,' *yavaneshta*, 'tin,' *yívana*, 'incense.' But in these cases the term Yavana may refer, not to the Greeks, but to other foreign nations who succeeded them.

Many articles of commerce have Indian names identical with the European, e. g., *kastúra*, κασσίτερος; *kastúri*, καστόρειον; *marakata*, σμάραγδος; *śringavera*, zingiber; and others.

But in these cases it is uncertain whether India was the borrower or the lender, and in a large number of instances there is no doubt as to the Indian origin. Examples are :—*ὄπαλος*, *upala*; *βήρυλλος*, *veluriya* (*vaiḍúrya*, *vaidurya*); *καρύφυλλον*, *kaṭukaphulu*; *κιννάβαρι*, *khinnavári*, etc.

[The Professor then devotes a few words to the Græco-Buddhist sculptures and the origin of coinage in India, but his general observations are only of a cursory nature, and need not be translated. I have already translated his note on the words *dramma* and *dāndra*. He refers to the essay of Stephani, (*Nimbus und Strahlenkranz*; in the *Mémoires de l'Académie de St. Petersbourg*, 6 ser. t. IX) as establishing the probability that the rise of the nimbus in art, which Spence Hardy regarded as of eastern origin, is more probably an importation from the West. On this question Mr. Senart has no doubt at all, and boldly says (page 38) that the classical origin of the nimbus is certain. It is quite possible that a close examination of the Buddhist sculptures of the Gándhára school with reference to the use of the nimbus may help to settle their date. V. A. S.]

According to Halévy, who has recently republished his views, the Indian alphabet itself, as it is first met with in the time of Piyadasi (Aśoka), is derived from the Greek. But this theory appears to deserve little credit, and it is much more probable that the importation of the Semitic writing into both India and Greece occurred at the one period, and that the great resemblance between several of the most important characters is thus to be explained. In any case, the further inference impugning the antiquity of Indian literature, which Halévy draws from his theory, completely fails, because the oral transmission of ancient texts undoubtedly reaches back to very early times.

The fact is of interest that the Greek names of the colour 'black' *μέλας*, and of the reed-pen, *κάλamus*, both found admission into Sanskrit under the forms respectively of *melā* and *kalama*. *Melā* occurs in the romance of the *Vāsavadattā* which seems to be related to a Milesian tale (see post). The observation as to *kalama* applies only to the word when used in the sense of 'pen,' and not to the form of the word itself, (see *Hāla* (1881) *Vorw.*, p. XVII, *Monatsbericht*, 1871, p. 623).

It appears almost certain further that the Sanskrit word *pustaka*, 'book,' should be regarded as an inversion of a possible Greek form *πυξικον*.

[It is certain that *pustaka* was introduced into Sanskrit at a comparatively late date. It occurs in the *Pañchatantra*. The form *πυξικον* is not known to occur, but *πυξίον* is used in Aristophanes, *Frag.* 671, in the sense of a tablet for writing on. Liddell and Scott quote the same passage as a reference for the form *πυξίδιον*, which seems to be a various reading. V. A. S.]

We thus arrive at the most important matter in which Greek influence on India is demonstrable, namely Poetry, Science, etc. We have already seen that in the epics the Greek princes are brought into direct relations with the actors in the narrative. Great analogies and coincidences certainly exist between the *Mahābhārata*, and, still more, between the *Rāmāyaṇa* and the *Iliad* and *Odyssey*. The rhetorician Dio Chrysostom (who lived in the time of Trajan A. D. 98–117) refers to these peculiarities of the *Mahābhārata* when he ascribes to the Indians a knowledge of the poems of Homer as transferred to their own language and dialect. This passage was formerly interpreted as indicating merely the existence of the *Mahābhārata* in the time of Dio Chrysostom, but, in the light of facts recently brought to light, the hypothesis that the author of the so-called 'battle-section' of the *Mahābhārata* actually made use of the Homeric legend, cannot well be absolutely rejected.

The *Rāma* legend in its Buddhist dress differs greatly from that presented by *Vālmīki*, and there seems to be no doubt that the Buddhist version is of higher antiquity. It is thus quite possible that *Vālmīki* may have used the Homeric legend for his arrangement of the story (see *Weber. Abhandlung "über das Rāmāyaṇa"* 1870.)

The patriotism of the Hindus is grievously wounded by this theory, but no one wishes to argue that the *Rāmāyaṇa* is copied from Homer. There is, however, no reason to reject as *a priori* impossible the theory that it has been influenced by Homer. It daily becomes more clear that elements of Homeric myth, e. g. *Leukothea* and the Trojan horse, have entered into Buddhist historical legends. But, when the mutual exchange of legendary epic materials is considered, it is rarely possible



in such discussions to obtain a result of objective certainty. Conviction may be attained, demonstration is impossible.

So far as coincidences of this sort are not to be ascribed to a purely spontaneous, natural origin and development in both places, two further possibilities must be kept in view. The first is that the coincidences in question need not necessarily be ascribed to borrowing from either side, but may be derived from primitive nature myths of early Indo-Germanic times. The second is that, granted borrowing in historical times, the Grecian legend may not have been of Greek origin, but may have first come from the East, and travelled back again to India.

What has been said above of epic myths holds good for the forms and materials of fairy tales and stories of enchantment, for folklore in short. Indian literature, thanks to the activity of the Buddhists, and, in later times, of their rivals the Jains, is specially rich in compositions of this class. Some of these, in their existing shape, date from tolerably recent times, but it is plain that they rest on old traditions and lost works, which were partly composed, not in Sanskrit, but in popular dialects.

The older works of this kind are generally associated with the name of Śātavāhana; the more recent with that of Vikramāditya.

Both of these kings are alike connected by tradition with the conquests of foreign rulers, especially the Sakas, or Indo-Scythians, and are themselves represented with features of foreign origin.

In yet another branch of literature a similar great agreement between Greece and India is apparent, that is to say, in what may be called the *Æsopian Fable*.

India has for some time past been considered the parent country of fables. With regard to the transfer of collections of Indian fables to the West since the sixth century A. D. the statement holds good, especially for many beast stories, which, so to say, have been pressed into the service of politics, to serve as a mirror for princes. Accordingly, in this department, and for the period named, we must add to the three, or rather four, possibilities to be weighed in estimating the value of coincidences between India and the West, yet a fifth.\*

But, as regards older times, we must absolutely give up the notion that India is the parent country of the *Æsopian fable*. On the contrary, the Greek form of the fable (putting aside the question of its

\* The five possibilities referred to seem to be:—(1) Borrowing by India from Greece, (2) Spontaneous, natural, independent development in both countries, (3) Derivation from primitive Indo-Germanic (Aryan) nature myths, (4) Borrowing by Greece from India, and re-importation into India from Greece, (5) Transfer of political apologues from India to Europe in sixth century A. D. and later. [V. A. S.] But see *post*.

possible independent origin) gives, when compared with the Indian, a more distinct impression of simplicity and originality.

The beasts who take special parts in the beast stories either do not belong distinctively to the Indian fauna, or do not exhibit the characteristics which the Hindus attribute to them.

There is reason to suppose that two words borrowed from Greek fables occur in Sanskrit, *viz.*, *lopáka*, 'jackal,' from *ἄλωπηξ*, (the old Indian form being *lopása*); and *kramelaka*, 'camel,' from *κάμηλος*; both forms being based on a meaning obtained by popular etymology. Lassen is inclined to seek a Semitic origin for *kramelaka*, but the termination *ela* is decisive against this supposition.

[The word is, however, said to occur in all Semitic languages. Prof. Weber's position is hardly intelligible without further explanation. He refers to his Ind. Stud. 3, 336, Monatsber. d. Berl. Akad. 1871, p. 619. V. A. S.]

In this case also the Buddhists have been the chief carriers of Western materials to India, especially in their Játaka stories.

So far we have dealt with essentially popular materials, and with appropriations made, so to speak, by word of mouth.

There is, however, an artistic form of Greek literature, the Greek romance, which appears to have found direct entrance into India.

Peterson, in his preface to his edition of Báṇa's Kádambarī (1883, p. 101) compares the style of the author directly with that of the Alexandrian, Achilles Tatius (A. D. 450).

I have already in my remarks on that work (*D. L. Zeitung*, 1884, p. 120) pointed out that it was very natural that the "good looking girls," the Yavana maidens, at the courts of the Indian kings should have formed a means of communication for Milesian love stories. Material resemblances, moreover, exist between the Vāsavadattā of Subandhu, a predecessor of Báṇa, and a tale of Athenæus (13, 35), (*flor. circa* A. D. 230) and both Indian authors describe the bringing to life of a stone statue by an embrace, so as to recall the story of Pygmalion.

In this connection the fact is of special interest that in one of the tirades in the bombastic style usual in the Vāsavadattā the word 'ink' is expressed by *melá*, i. e., *μέλαν*. The passage (*Vāsav. p.* 239) is to the following effect:—"Though the heaven became the page, the sea the ink-bottle (*melamanda*), and the writer a Brahman, yet could he not describe in many thousand ages the agonies of love which she has suffered on his account." The same conceit is still popular in modern Greek love songs, and, according to Hall, is found also in the Qurán. (18, 109). It probably goes back to the Milesian literature.

It appears to me proper, before I go further, to insert here a brief review of what is known as to the coincidences between the subjects of Greek and Indian tales.

I shall not undertake in individual cases to decide which of the five points of view is the true one, that is, to decide whether each story (1) developed naturally, (2) or is of Indo-Germanic, or (3) of Western, or (4) of Greek origin, or (5) was conveyed from India to the West. At present such a determination is for the most part impracticable. But I can at least arrange the whole generally in a certain chronological order.

[Prof. Weber then proceeds to give, with references in each case, a long catalogue of myths relating to the sun-bird, Garuḍa, Cinderella, the wishing-cow, etc., which are all descended from primitive, Indo-Germanic, Vedic times. He classes in the same category the stories of enchanted princes, castles, etc., etc., in which German folk-lore is so rich. Some of these myths may have arisen in India, and the Greeks and Romans knew a good many of these things on their own account. An extensive and rich field of investigation here lies open. I may note that the Indian Antiquary for several years past has published numerous stories of Indian folk-lore, which are not here referred to by Prof. Weber.

He then gives a similar list of myths which have travelled from the West to India, such as the treasure-chamber of Rhampsinitus, the Rape of Ganymede, the Sibylline books, Orpheus and Eurydice, etc., etc. Christian legends will be dealt with further on. He then proceeds to discuss the origin of the Indian drama. He holds that the germ of the Indian drama is to be found in indigenous religious festivals, resembling the German Passion plays, and that this opinion is strongly confirmed by passages in the *Mahābhāshya* (see *Ind. Stud.* 13, 490 *seqq.*). But the beginnings of dramatic art thus indicated are of a simple and grotesque kind, separated by a very wide interval from the finished work of Kālidāsa. The scope for Greek influence was found in this interval. He then briefly notices with approval the treatises of Brandes and Windisch, which I have discussed in my former essay.

He next takes up the subject of astronomy, his remarks on which I shall translate at greater length. *V. A. S.*]

So far as the sciences are concerned, astronomy is above all that in which Greek influence is plainly and clearly visible. The Indian astronomers themselves expressly describe the Yavanas as being their teachers. Among the five ancient Siddhāntas which the astronomer Varāhamihira (A. D. 504–87) has specially made use of there are two, the Pulīsa and Romaka Siddhāntas, which prove this by their very

names. The name Pulisa must be understood as equivalent to Paulus Alexandrinus.

I have already mentioned (*ante*, p. १४९) that the extant Sūrya Siddhānta represents Asura Maya of Romakapura as the first founder of astronomy, and that I regard him as being the Greek astronomer Ptolemy. I have also identified Manetho, the author of the Apotelesmata, [not earlier than the 5th century A. D., according to Smith's Classical Dictionary. V. A. S.], with Manittha, or Māṇidha. Others regard the name of the Yavana teacher (Yavaneśvara) Asphuvi[d]-dhvaja (Sphujidhvaja) as a corruption of a Greek name Aphroisios or Speusippus.

Whilst the oldest Indian astronomy, resting probably on a Babylonian basis, occupies itself with the moon and its mansions (*nakshatra*); the succeeding phase, under Greek influence, concerns itself chiefly with the planets and the sun, that is to say, the zodiac.

The direct consequence of this is the conversion of the Kṛittikā series of the *nakshatras*, hitherto current, and corresponding to a Taurus zodiac, into the Āśvinī series, corresponding to the Aries zodiac. Moreover, not only have the names of the planets and zodiacal signs passed by direct transcription into Sanskrit, and remained to some extent in use till the latest times (*eg.* *āra* = Ἀρης, and *heli* = ἥλιος), but numerous technical terms also have been incorporated into the language. Some of these have been worked into the poetic vocabulary, for example, *jāmītra* (= διάμετρον) occurs in Kālidāsa's Kumārasambhava. [The correct form is διάμετρος, not διάμετρον V. A. S.]

According to H. Jacobi, the allusions to ancient astrological notions, such as occur in Kālidāsa, are chiefly based on the works of Firmicus Maternus (A. D. 336–354). [The work of Firmicus Maternus is known under the title, 'Matheseos Libri VIII,' and is described as being a formal introduction to judicial astrology. V. A. S.]

With regard to arithmetic and algebra, in which the Indians are well-known to have accomplished much, Colebrooke (*Misc. Essays*, 2, 401, 446) was inclined to accept the fact of Greek influence, especially that of Diophantus.

On the contrary, Dr. Hoernle, in the preface to his excellent dissertation on an ancient arithmetical text, composed in the Gāthā dialect, and seemingly of Buddhist origin, decides for "the entirely native origin" of Indian arithmetic. The text in question is supposed to date from the third or fourth century A. D., but the extant manuscript does not seem to be older than the eighth or tenth century. [Compare Major Temple's exposition of Burmese arithmetic in *Indian Antiquary*, Vol. XX (1891), p. 53. The Burmese system is said to be much the

same as that used by astrologers in India, and certainly does not seem to show the slightest trace of the influence of western science. V. A. S.] Woepcke (*Mém. sur la propagation des chiffres Indiennes*, Paris, 1863) supposes that there is an agreement between the so-called *Arearius* of Archimedes (B. C. 287–212) and the problem concerning the atomic contents of a *yojana* set at the wedding examination of Buddha. If the alleged coincidence be accepted as established, it would be simpler to believe that the Buddhist statement, the age of which is in no way established, rests on borrowing, then to hold with Woepcke that the problem was borrowed from India. It is even possible that both the Greek and Indian forms of it are the results of Babylonian influence.

Quite recently a Sanskrit version of the *Elements* of Euclid has come to light. In its existing form this work does not go back to a period earlier than the beginning of the last century. The information about it is, however, extremely vague. We do not know whether this work rests on an earlier one of ancient date, or whether it is to be referred to the beginning of the preceding, that is to say, the 17th century, as the result of modern European influence, possibly that of the Jesuit fathers at the court of the emperor Akbar (1556–1605).

In any case the discovery is of interest, because the foreign material of the book has been completely melted down into an Indian shape, which fact offers an excellent parallel for similar precedents in older times.

[This melting down into Indian forms is characteristic of almost all the Indian borrowings, and is the reason that the foreign origin of so much of Indian civilization has been so tardily and unwillingly recognized. I have already commented on the fact with reference to architecture, sculpture, coinage, and the drama. (See my *previous essay*, p. 189.) The only exception to the rule seems to be the sculpture of the Gāndhāra school, which is obviously western in character. V. A. S.]

Notwithstanding these possible, or even very doubtful, examples of Greek influence, the Hindus have certainly gone their own way in the province of arithmetic, geometry, etc. The oldest, and rather curiously framed, rules upon permutations and combinations are naturally connected with metrical problems, such as ‘How many variations based on the quantity of the syllables are possible in a foot of two, three, four, or more syllables?’ Here no foreign influence can well be detected.

Similarly the rules in the so-called *S’ulvasūtra* are derived from practical experiments on the methods of modifying the typical bird-shape of the regulation fire-altar built of bricks. These experiments actually led to the discovery and solution of the theorem concerning the relation between the hypotenuse and the sides of a right-angled

triangle ascribed by the Greeks to Pythagoras, and even to attempts at the quadrature of the circle.

In connection with this subject, L. v. Schröder has recently (in 1884) maintained the proposition that this very theorem was borrowed along with other things by Pythagoras from India.

But nothing is known concerning the date of the *Sulvasūtra*, which is itself only an appendix to one of the so-called *Srautasūtras* of the *Yajur Veda*. Pythagoras is generally assumed to have flourished between B. C. 540–500, and this is rather an early period in which to suggest importation from India.

It is in reality unnecessary in this case to adopt the hypothesis of borrowing at all, for it is quite possible that correct mathematical results may be attained independently in different places. The definite rules of the *Sulvasūtra* were elaborated as the result of practical experience. It should further be observed that the *Sulvasūtra* has remained quite isolated in India, and has, according to all appearance, undergone no further development. We shall come later to the consideration of the supposed studies of Pythagoras in India.

Indian medicine also appears not to have been uninfluenced by Greek. The tendency of early writers was to exaggerate the high antiquity of medical science in India. Haas has gone too far in the other direction in supposing the *Sūsrnta* to have been subject not only to Greek but to Muslim influence, though it is possible that some modern works of Indian medicine may have been affected by Muhammadan teaching. Rudolf Roth has shown in an interesting way the relation between the *Asclepiad* oath and the teaching of the *Charaka* concerning the duties of the physician. The identity of the doctrine of the three humours is obvious. Should further coincidences of the kind be established, chronology, at any rate, will oppose no obstacle to the derivation of the Indian doctrines from Greek sources.

So far as concerns philosophy, and religious ideas, which in India are hardly separable from it, the statements of the Greek authors leave no doubt that the Indian ascetics, *γυμνοσφοιστάι*, *ἵλοβίοι* made a deep impression on Alexander and his companions. The voluntary burning of *Kalanos* at Athens aroused a feeling of profound, but at the same time, compassionate astonishment. Nor is any doubt possible that the doctrines of the Alexandrian Neo-Platonists and Neo-Pythagoreans, especially the doctrines of Philo of Alexandria, and the doctrine of the *λόγος* derived from him as given in St. John's Gospel, bear Indian features, or rather appear to have been impregnated with Indian ideas.

But to go back to still earlier times, and to derive the Pythagorean doctrine of metempsychosis also from India appears to me, on the contrary, to be doubtful.

L. v. Schröder, who has recently advocated this theory, does not, indeed, go so far as one of his predecessors, who wished to explain the name of Pythagoras as equivalent to Buddhaguru, but even he maintains that the Pythagorean doctrine of transmigration of souls is derived from India, that is to say, from Buddhism. In fact only the latter assumption need be made, for it would seem that before Buddha this doctrine had not gained acceptance in India, whilst with him it forms a corner stone for his preachings intended for the people, especially the Jātaka legends. Now the still imperfectly ascertained date of Buddha corresponds at least approximately with the fixed date of Pythagoras, namely, B. C. 540–500, or perhaps a little later.

On mere *a priori* grounds it seems in a high degree unlikely that Buddha was the teacher, and Pythagoras the learner. Since direct relations between the two men are not to be thought of, but only indirect ones by way of Egypt or Persia, we must, considering the difficulties of communication in those times, allow at least several decades, even if that be sufficient, for the establishment of such relations. Moreover, the doctrine of transmigration of souls is in itself so agreeable to the human mind as a means of equalizing the injustices of life on earth, by reward or punishment of the actions of men, that it may be regarded as an idea of natural growth. Of course, we cannot affirm of it, as of the so-called Pythagorean theorem, that it gives an accurate result, but it may very well have arisen independently among various peoples, in various parts of the world, without obliging us to assume a mutual borrowing.

When, however, we find Socrates, in the *Gorgias*, using the formula *τὰ καλὰ, ὠφέλιμα, ἡδέα* (or, as it is rendered in Latin, ‘honestum, utile, dulce,’) to express the ideal of legislation and morality, this formula agrees so closely with the three Indian objects of living, *dharma*, *artha*, *kāma*, and has such an individual colouring, that it is at least difficult to suppose that the conception originated independently in both places.

In India this triad does not appear in the most ancient period, but only in more recent times, so that in this case I do not hesitate to give priority to Plato.

The Brahmins of the Vedic period were not acquainted with the formula. The Buddhists and Jains lay special stress on it. They frequently use the words *dharma* and *artha* together in the senses respectively of ‘law or precept,’ and ‘meaning, or signification of *dharma*,’ which differ completely from the sense the same words have when used in combination with the third word *kāma*. This circumstance indicates that the triad was formed in consequence of a foreign suggestion.

Just as Greek stories have found their way into the Jātaka legends

of Buddha, these Platonic ideas may very well have been transferred in a similar way.

Even the bridge by which they crossed may probably be recognized. For should not the dialogues between the Yavana king Milinda (Menander), and the Buddhist priest Nāgasena, as given in the 'Milindapañha,' be regarded as connected with the Platonic dialogues? May we not even look upon them as an intentional Indian imitation? Oldenberg suggests that reminiscences of meetings between Indian monks and Greek rhetoricians are preserved in these dialogues.

In the preceding case we have to deal not so much with a doctrine belonging to the peculiar systems of Indian philosophy as with a, so to speak, popular view. Nevertheless, even for these systems the chances of literary history are very unfavourable to their priority as compared with those of the old Greek philosophy, inasmuch as the former, on the whole, belong to a much later period than the latter.

When, therefore, in any direction a special agreement between the old Greek and Indian philosophies is found to exist (such, for example, as may be the case with regard to the Indian atomic theory, developed later in a very peculiar fashion), and that agreement cannot be regarded as a spontaneous, independent, mental product of both peoples, we must always assume a borrowing from Greece.

An example of the contrary may here be noted, though it is concerned with a popular conception rather than with a doctrine of systematic philosophy. In India, besides the above mentioned triad of the objects of human life we find another of a purely ethical kind, namely, a classification of sins into those of thought, word, and deed, which testifies to a very high and pure popular moral consciousness. This triad occurs in the Avesta and Veda, as well as with the Buddhists, and so dates from the Aryan period, during which the later Iranians and Indians still formed one nation.

When, therefore, we find it in our Christian litanies from the time of Pope Damasus in the middle of the fourth century down to Paul Gerhardt ("with heart, mouth, and hands") we must recognize an Indian, probably Buddhist, influence on the western form. Some points of connection with the Protagoras of Plato, as well as with certain biblical expressions, may also be traced, but not enough to establish any systematic ethical doctrine, such as is expressed in the litanies.

In this connection must be considered the question recently propounded by Rudolf Seydel, Jul. Happel, and others, as to how far we may assume possible Buddhist influence on the Christian legends, and even on the gospels themselves.

It is obvious that, even if the supposed influence is established, the



teaching of Christ suffers no disparagement, and is in no wise touched as regards its peculiar meaning.

The question whether parables, such as those of the prodigal son, and the Samaritan woman at the fountain, which occur in nearly identical forms in Buddhist literature are of Christian origin, or, conversely, the result of Buddhist influence on Christianity, still seems to me one that is altogether open. Especially, because I do not agree with those who attribute to the Buddhist texts concerned an antiquity so high as is generally supposed.

But it is quite clear that Buddhism by means of its convents for monks and nuns, its legends of saints, its worship of relics, its towers, its bells, and, above all, through its rich ritual and hierarchical pomp, did exercise influence on the development of Christian worship and ceremonial.

The influence of Indian Buddhism on the development of Gnosticism and Manichæism is also established. The doctrine of the Trinity, likewise, might possibly be connected with the triad of the Avesta,—Ahuramazda, Zarathustra, and the congregation,—as well as with the Buddhist triad, Buddha, Dharma, and Saṃgha.

It is, moreover, well-known that the two Catholic saints Barlaam and Josaphat simply owe their origin to a mistaken appropriation of a Buddhist legend. Finally, the rosary of the Catholic Church, is, according to all appearance, of Indian origin, and its very name seems to be due to an erroneous apprehension of the word *japamālā*, the Sanskrit term for 'prayer-necklace.'<sup>\*</sup>

But we must also look in the opposite direction, for nowhere does continual give and take more constantly occur than in these matters, which so profoundly concern the human spirit.

When then, for example, it is said in the Kāthaka Upanishad (1, 2, 23):—"This *ātman* (here the term practically is equivalent to 'God') is to be apprehended not through instruction, nor insight, nor yet by much learning, but only by him whom He chooses that through him He may be known," the connection of this doctrine, the idea of which is otherwise foreign to India, with the doctrine of 'election by grace' in the Epistle to the Romans is so apparent that it seems to me that Christian influence must here be assumed. In my opinion the position of this text in literary history, as the work is now extant in the Atharva recension, is in no way inconsistent with this view.

According to Oldenberg (*Buddha*, p. 56, (1890)), however, the Kāthakopanishad should be regarded as præ-Buddhist, and, if this be

<sup>\*</sup> *Japā* means China rose in Kīrātārjunīya and Śisupāla vadha (*Benfey, Dict.*)  
[V. A. S.]

true, the question must be decided in the converse way. For the doctrine referred to is not one of such natural growth as to justify the assumption that it arose independently in India as well as in Galilee.

As to the Bhagavadgītā it is certain that it shows the influence of Christian teaching, though Lorimer goes much too far in maintaining this proposition.

Wilson long ago traced back to a Christian basis the whole doctrine of *bhakti*, the unconditional, believing devotion to the Lord, that is to the sectarian god with whom the work is concerned.

The frequent designation of the teacher under the traditional epithet of *śveta*, white, or of a name in which *śveta* forms a part, seems to refer to white men, Christian missionaries.

The full information given in the Mahābhārata (12, 12771, *seqq.*) about the travels of the Indian wise men (Ekata, Dwita, Trita, and especially, Nārada) over the sea, as far as Svetadwīpa, the 'Island of the (*śveta*) white men,' in order to learn there the doctrine of the One God, is intelligible only when understood to refer to the journeyings of pious Indians to Alexandria, and the knowledge of Christianity which they there acquired.

The knowledge of the name of Christ, the son of the divine Virgin, obtained in this way, and further diffused by Christian missionaries and the residence of natives of India in Christian countries, and by the partially divine honour paid to him by his followers could not fail to remind the Indians of the semi-divine Kṛishṇa, son of Devakī, whose name seems to mean divine.

Thus it has come to pass that many Christian incidents and legends, especially those of Christ's birth among the shepherds, the stable, the manger as his place of birth, the taxing by Cæsar Augustus, the massacre of the innocents at Bethlehem, and others of the sort, are repeated in the Indian legends of Kṛishṇa.

The ordinary legends state that the child Kṛishṇa, in order to save him from hostile machinations, was removed on the night of his birth from the lying-in-room by his father and made over to his foster-parents, the shepherd couple, Nanda and Yaśodā. But certain detailed rules concerning the festival of Kṛishṇa's nativity exist, and are found in texts of quite modern date, which narrate the incidents in a different way, that clearly betrays a foreign origin. According to this version, Devakī, the child's mother, stays quietly lying in the manger, nursing the infant, while numerous groups of shepherds, angels, and others stand around blessing and praising. Even the ox and ass are not wanting. The star, which stands still in the sky, and fixes the date for the festival, is Rohiṇī, or Aldebaran.

Concerning the early existence of Christian congregations in India, supposed to have been established by the Apostle Thomas, no doubt can be entertained. According to the testimony of Nilos Doxopatrios, who lived in the twelfth century, the Patriarch of Antioch, even at that late date, sent a *καθολικός*, or deacon, to 'Ρωμογυρι, or Rámagiri, in India. In the sixteenth century the Portuguese found the Christians of the Church of St. Thomas in Malabar using Syrian books and Arian forms of worship. They gave themselves a great deal of trouble to convert these heretics. A certain image of Devakí, nursing the infant Krishṇa, which recalls the representations of the Madonna Lactans, may be explained as a result of the delicate diplomatic skill of the Jesuit Missionaries at the court of Akbar the Great, but it is possible that its origin should rather be traced back to an ancient Byzantine motive.

In conclusion, an early reference to Christian missions, in connection, not with the worship of Krishṇa, but with that of Ráma, whose mild form is much more appropriate for the purpose, must be brought forward. I allude to the legend of Sāmbuka, the pious Sūdra, which is used by Kálidása in the Raghuvansá (XV, 50), and by Bhavabhúti in the Uttara Rámacharita. (*Act II, Wilson, Hindu Theatre, Vol. I, p. 319*).

In the Raghuvansá version Sāmbuka simply meets his death at the hands of Ráma as a penalty for having applied himself to ascetic practices in order to attain the rank of a god (*surapadam*), although as a Sūdra, he was not entitled to do so. He was therefore regarded as a disturber of the public peace, and is stated to have failed in attaining his object (*gatim na prāpa*).

In Bhavabhúti's work, on the contrary, the victim actually appears on the scene as the man-god, in divine form, and gives thanks to Ráma for having been aided by his coming to attain death, and thereby divine rank and blessedness.

K. M. Banerjea, in the preface to his edition of the Nārada-Pancha-rātra, has recognized, and probably with justice, in this legend an allusion to the settlement of Christian missionaries on the coasts of Coromandel and Malabar. It is possible that in the form of the legend as given by Bhavabhúti a faint reference to Simeon of St. Luke's Gospel (II, 25, 29) may dimly be discerned, but, if this be so, Simeon has been terribly disfigured by his Indian disguise.

Last of all, it should be observed that when a modern text, the Sukran̄ti, in enumerating the 32 Indian sciences, gives the last place to the *Yávanam matam*, which is explained as meaning 'the doctrine of the unity of God,' the reference is more probably to the Koran than to the New Testament. G. Oppert, however, the editor of this work, considers it to be very old.

*The Dinājpur Copper-Plate Inscription of Mahīpāla.*—By PROFESSOR  
F. KIELHORN, C. I. E. ; GÜTTINGEN.

Some time in 1886 the Society before which I have the honour to lay this short paper received from Mr. Giridhari Basu, Deputy Inspector of Schools at Dinājpur, several rubbings of a newly discovered copper-plate inscription. They were submitted to the late Dr. Rājendralāla Mitra, who pronounced the find an important one, but was prevented by the state of his eyes from attempting a decipherment. About six months ago the same rubbings were sent by Dr. Hoernle to myself, with an invitation, if possible, to edit the inscription for the Society. In now complying with Dr. Hoernle's request, I may well say that this new Dinājpur copper-plate is indeed of great value, because, together with the Society's Āṃgāchhī plate of which I owe an excellent impression to Mr. Floet, it settles beyond dispute the line of succession of the so-called Pāla dynasty of Bengal, from Nārāyaṇapāla down to Vīgrahapāla III. The new plate, it is true, in its historical portion contains nothing which is not in the Āṃgāchhī plate ; but it enables us to read what before in that plate was illegible, just as the Āṃgāchhī plate supplies much of what would otherwise be doubtful or illegible in the Dinājpur plate. And having carefully compared both plates, I may state with confidence that, beginning from Nārāyaṇapāla, the line of Pāla kings was as follows:—

- (1.) Nārāyaṇapāla.
- (2.) His son Rājyapāla.
- (3.) His son Gopāla II.
- (4.) His son Vīgrahapāla II.
- (5.) His son Mahīpāla.
- (6.) His son Nayapāla.
- (7.) His son Vīgrahapāla III.

Of these, Nārāyaṇapāla is the donor in the Society's Bhāgalpur plate, Mahīpāla the donor in this new Dinājpur plate, and Vīgrahapāla III. the donor in the Āṃgāchhī plate.

Like the two other plates, the new Dinājpur plate is a single one, measuring about 1' broad by 1' 2½" high. It is surmounted by a highly wrought ornament, fixed on the upper part and advanced some distance on the plate, and apparently containing, within a circle, about 2½" in diameter, the word *S'ri-Mahīpāladevasya*. The plate is inscribed on both sides, the front containing 34, and the back 28 lines of writing. On the front down to line 13, and on the whole of the back the writing is generally well preserved ; but the middle of the front all the way down below line 13 has suffered much from corrosion, so that many *akṣaras*

have become more or less illegible. Besides, two *aksharas* are entirely gone at the lower proper right corner, where the plate is damaged. The engraving apparently is deep and carefully executed; it was done by the artisan Mahādhara, an emigrant from the village of Posalī (line 62), the father of the artisan *Sasīdeva* who engraved the *Amgāchhī* plate. The size of the letters is about  $\frac{1}{16}$ ". The characters are the kind of *Nāgarī* which about the 10th and 11th centuries appears to have been current in the eastern part of northern India, and one peculiar feature of which is, that *r*, preceding another consonant, is ordinarily denoted, not by the superscript sign, but by a short line, sideways attached to the upper right side of the following consonant. Essentially the same alphabet is employed in the Mungir copper-plate of Devapāla, in the Budāl pillar inscription of which I owe an impression to Dr. Burgess, and in some of the Gayā inscriptions. The language of our inscription is Sanskrit. Lines 1–24, with the exception of the introductory *om svasti*, and lines 54–62 are in verse; the rest is in prose. As regards orthography, *ḁ* is throughout denoted by the sign for *v*, and the dental sibilant is occasionally employed instead of the palatal, and the palatal instead of both the dental and the lingual sibilants.

The inscription is one of the devout follower of Sugata (Buddha), the *Parameśvara Paramabhāṭṭāraka Mahārājādhirāja Mahāpāladeva*, the successor of the *Mahārājādhirāja Vīgrahapāladeva* (l. 30). From his residence at Vi[lā]sapura<sup>1</sup> (l. 29), Mahāpāladeva informs the officials and people concerned that, to increase his parents' and his own merit and fame and to please the holy Buddha (l. 46), after bathing in the Ganges at the time of a *Vishuvasanṅkrānti*<sup>2</sup> (ll. 49 and 50), he has given the village of Kurāṭapallikā (exclusive of the part called Chūṭapallikā), —a village in the Gokalikā *maṇḍala* of the Koṭīvarsha *vishaya* of the Puṇḍravardhana *bhukti*<sup>3</sup> (ll. 30 and 31), —to a learned Brāhman, the *bhāṭṭaputra* Kṛishṇādityasarma, a son of the *bhāṭṭaputra* Madhusūdana and son's son of the *bhāṭṭaputra* Rishikeśa,<sup>4</sup> of the Pārāsara *gotra* and with the *pravara* Śakti, Vasiṣṭha and Parāsara, an inhabitant of the village of Chavaṭi, to where he or his ancestors had migrated from the village of Hastipada (ll. 47–49). The king moreover appeals to his

<sup>1</sup> The second *akshara* of this name is indistinct in the rubbings.—A different place is mentioned in the *Amgāchhī* plate; but it is not Mudgagiri.

<sup>2</sup> i. e., either the Mesha- or the Tulā-saṅkrānti.

<sup>3</sup> The Koṭīvarsha *vishaya* and Puṇḍravardhana *bhukti* are mentioned similarly in the *Amgāchhī* plate.

<sup>4</sup> So the name is given in the plate. The correct spelling would be Hrishikeśa. The plate also mentions the Veda and *śākhā* of the donee, but the words for both are illegible.

successors to respect this grant, and commands the villagers to make over to the donee all due taxes and shares of the produce (ll. 50–53).

The wording of the prose passage (ll. 24–53) of which the preceding is an abstract agrees most closely with the phraseology of the Bhāgalpur plate.<sup>5</sup> The royal residence of Vi[llā]sapura and Mahīpāladēva himself are described exactly as Mudgagiri and Nārāyaṇapāladēva are in the other plate. And the long line of officials enumerated, the qualifications of the village granted and the exhortation to future rulers, etc. are almost identical in both plates. A difference which may be pointed out is that, while in the present inscription, just as in the Kṃgāchhī plate, the donation is made to please the holy Buddha, in the Bhāgalpur plate Nārāyaṇapāla, though also described as a devout follower of Sugata, professes to please the holy Śiva and actually makes his gift in favour of that deity.

As is the case in the other inscriptions, this grant was dated (in line 53) in regnal years; but the figures for the year and day and the name of the month are illegible in the rubbings. The date is followed (in lines 54–61) by seven of the usual benedictive and imprecatory verses of which five occur also in the Bhāgalpur plate, while all are given, in the same order, in the Kṃgāchhī plate. And these again are (in line 61) followed by another verse which records that the *dātaka* for this grant was the minister *Bhaṭṭa Vāmana*. The inscription closes with a verse containing the name of the engraver which has been already mentioned above.

I have reserved for the end my account of the introductory poetical part of the inscription (lines 1–24), which gives the genealogy of the Pāla princes from Gopāladēva I. to the ruling prince Mahīpāladēva. It consists of twelve verses.<sup>6</sup> Verses 1–5 are identical with the verses 1, 2, 4, 5 and 7, and the sixth verse is a slightly altered version of verse 10, of the Bhāgalpur plate. And the genealogy furnished by these six verses undoubtedly is, as Dr. Rājendralāla Mitra and Dr. Hultzsch have put it:—

- |                |                  |
|----------------|------------------|
| 1. Gopāla.     |                  |
| └───┘          |                  |
| 2. Dharmapāla. | Vākpāla.         |
| └───┘          |                  |
| 3. Devapāla.   | Jayapāla.        |
|                | 4. Vīgrahapāla.  |
|                | 5. Nārāyaṇapāla. |

<sup>5</sup> See Dr. Hultzsch's edition in the *Indian Antiquary*, vol. XV, p. 304.

<sup>6</sup> All the verses occur in the Kṃgāchhī plate.

I am aware that, as regards Devapála, this statement of the relationship of the earlier Pála princes does not agree with the account of the Mungir copper-plate<sup>7</sup> which makes that prince (not the nephew, but) the son of Dharmapála and his queen, a Ráshtrakúta princess; but I see no way of reconciling the difference. Considering that the Mungir grant was issued by Devapála himself, it is more than probable that what is stated in it is correct, and that the other inscriptions in this particular are wrong.

Having brought down the genealogy to Náráyaṇapála, our inscription proceeds as follows:—

(Verse 7.) 'His (*i. e.*, Náráyaṇa's) son was the protector of the middle world, the illustrious Rájyaṇapála, whose fame is proclaimed by water-tanks as deep as the sea and by temples the walls of which equal the noblest mountains.

(8.) As the store of light proceeds from the eastern mountain, so sprang from that king of the east a son, born from his fortunate queen,<sup>8</sup> a daughter of the high (*tuṅga*) high-crested (*uttuṅga-mauli*)<sup>9</sup> moon of the Ráshtrakúta family,—the illustrious Gopáladeva, who long was the sole lord of the earth, gaily clad by the four oceans which are lustrous with many precious stones.

(9.) Him, richly endowed with the qualities of a king, the fortune of regal power,—energy, good counsel and majesty,—worshipped as her lord, dear and attached to him, and serving the earth like a fellow wife.

(10.) From him sprang in the course of time, augmenting the innumerable blessings of his parent, Vighraṇapáladeva, who, dear to all, stainless and versed in every art, when he arose, alleviated like the moon<sup>10</sup> the distress of the world.

(11.) When the huge elephants of his army had drunk pure water in the water-abounding eastern land, and had roamed about at will in the sandal forests at the foot of the Malaya range, they like clouds took possession of the ridges of the snowy mountain, cooling the trees with showers of drizzling rain.<sup>11</sup>

<sup>7</sup> See the lithograph in the *Asiatic Researches*, vol. I, p. 123, plate I, line 14.

<sup>8</sup> Or *Bhāgyadevi* may be the proper name of the queen.

<sup>9</sup> Undoubtedly the writer, by the words *tuṅgasyottuṅgamaulaḥ*, means to suggest the name of the Ráshtrakúta king spoken of, or he may even have used *Tuṅga* as a proper name, for *Jagattuṅga*. I understand the prince referred to to be the Ráshtrakúta Jagattuṅga I., who must have ruled in the beginning of the 10th century A. D.—See Fleet's *Dynasties of the Kanarese Districts*, p. 36; and Bhandarkar's *Early History of the Deccan*, p. 53.

<sup>10</sup> The epithets of the king may, of course, in different senses be applied also to the moon.

<sup>11</sup> *Vis.*, the water discharged from the elephant's trunks.

(12.) From him has sprung the protector of the earth, the illustrious Mahīpāladeva. In the pride of his arm having slain in battle all opponents, and having obtained his father's kingdom which had been snatched away by people having no claim to it, he has put down his lotus-foot on the heads of princes ?

Comment on these verses appears unnecessary. I will only say that exactly the same verses occur also in the Āmgāchhi plate, with this difference only that verse 11 in that other plate is applied to Mahīpāladeva's grandson Vīgrahapāladeva III. For the Āmgāchhi plate carries the genealogy two generations further than our Dinājpur plate, in two verses which I would venture to read and translate thus :—

त्वज्जन्मोपासङ्गं शिरसि हतपादः क्षितिभृतां

वितन्वन्सर्वाशाः प्रसममुदयाम्बेरिव रविः ।

हतध्वान्तः खिग्धप्रकृतिरनुरागैकवसति-

क्षतो धन्यः पुण्यैरजनि नयपाशो नरपतिः ॥

प्रीतः सज्जनलोचनैः स्मररिपोः पूजानुरक्तः सदा

संयामे चतुरोऽधिकश्च हरितः कालः कुले विदिषाम् ।

चातुर्वर्ण्यसमाश्रयः सितयशःपुञ्जैर्जगद्भज्य-

ञ्ज्मीमद्विग्रहपालदेववृत्तिर्जङ्घे ततो धामभृत् ॥

'From him, (i. e., Mahīpāladeva), in consequence of his religious merits, was born the fortunate prince Nayapāla. Renouncing the attachment to sin, putting down his foot on the heads of princes, eagerly fulfilling all desires, free from mental blindness, beloved by his subjects and the one home of affection,—he was like the sun which, when it rises above the eastern mountain, moves away from the night, touches with its rays the tops of mountains, opens up quickly all the quarters, drives away darkness, and is pleasant and red.

'From him is born the illustrious prince Vīgrahapāladeva, full of majesty. Eagerly gazed at by good men, always anxious to worship Smara's enemy, expert in battle even more than Hari, a god of death for the clan of his enemies, and a supporter of the four castes, he pleases the world with the abundance of his bright fame.'<sup>13</sup>

<sup>13</sup> I am unable, in my translation, to do justice to this verse. Vīgrahapāla, yellow (*gīta*), red (*rakta*), green (*harita*), and black (*kāla*), and thus the substratum of four colours (*chāturvarga*), yet pleased the people by his white colour.



TEXT.<sup>13</sup>

## FRONT.

- L. 1 [सो]<sup>14</sup> खस्ति । <sup>15</sup>मैत्री कारण्यरत्नप्रसुदि-  
 2 तद्दयः प्रेयसो सन्दधानः सम्यक्त्वम्बो(म्बो)धिवि-  
 3 द्याश्र(स)रिदमजजक्षिताज्ञानपङ्कः । जि-  
 4 त्वा यः [का]मकारिप्रभवमभिभवं शान्त्वजो-  
 5 व्याप शान्तिं स श्रीमान्बोक्कनाथो<sup>16</sup> जयति द-  
 6 श्रव(व)बोऽन्यच्च गोपालदेवः ॥ <sup>17</sup>लक्ष्मीजन्मनि-  
 7 केतनं समकरो वोढुं क्षमः आभरं पक्षच्छेदभयादुपस्थितवतामेका-  
 8 नैकनिरतः प्रौर्याण्योऽस्मादभूद्गुणाम्बोधिविजासहासिमहिमा श्री-  
 9 ष्टहीतसत्यतपसस्तस्यानुरूपो गुणैः सौमित्रेवदपादि तुल्यमहिमा वाक्-  
 10 पाणनामानुजः । यः श्रीमान्न-  
 11 यविक्रमैकवसतिर्भातुः स्थितः शासने श्रूय्याः शत्रुपताकिनीभिरकरो-  
 12 देकातपत्ता दिशः ॥ <sup>18</sup>तस्मा-  
 11 दुपेन्द्रचरितैर्जगतीं पुनानः पुत्रो व(व)भूव विजयी जयपाणनामा ।  
 धर्मद्विधां प्रमथिता युधि देवपाणे यः  
 12 पूर्वजे सुवनराज्यसुखान्धनैर्वीत् ॥ <sup>19</sup>श्रीमान्विग्रहपाणस्तत्पुत्रजतशत्रु-  
 रिव जातः । शत्रुवनिताप्रसाध-

<sup>13</sup> From the rubbings.<sup>14</sup> This sign of सो is preceded by the *akshara* नि, which is also put at the end of the first line, after प्रसुदि. The same *akshara* नि is also engraved in the upper right and left corners of the Bhāgalpur plate, and it appears to be similarly employed in the Kmgāchhī plate. I am unable to explain its meaning.<sup>15</sup> Metre, Sragdharā.<sup>16</sup> Read श्रीमान्बो<sup>17</sup> Metre, Śāradāvikrīḍita; and of the next verse.<sup>18</sup> Metre, Vasantatilakā.<sup>19</sup> Metre, Arya.

- 13 नविशोपविमन्नातिजकधारः ॥ <sup>20</sup>दिक्पालैः क्षितिपातनाय दध[तं  
देहे] विमत्तान्गुयान् <sup>21</sup>ओमन्तजन-
- 14 याम्ब(म्)भूव तनयं नारायणं स प्रभुम् । यः क्षोक्षीपतिभिः शिरो [मन्त्रि-  
वचास्त्रिष्टाङ्ग]पीठोपसं न्यायो-
- 15 पात्तमलक्षकार चरितैः खैरे[व धर्मावगम्] ॥ <sup>22</sup>तोया[प्र]यैर्वज्रधि-  
[मूण]गभीरगर्भैर्द्वालयैश्च
- 16 कुलभूधरतुल्यकक्षैः । विख्यातकोर्तिर[भव]त्तनयश्च तस्य श्रीराज्यपाल  
इति मध्यमशोकपालः । <sup>23</sup>तस्मा-
- 17 त्पूर्वक्षितिध्रान्निधिरिव महसां [राष्ट्र]कूटा[न्व]येन्दोस्तुङ्गस्योत्तुङ्गमौले-  
र्दृष्टितरि तनयो भाग्यदेव्यां प्र-
- 18 सूतः । श्रीमान्गोपालदेवश्चिरतरम[वनेरेक]पत्न्या इवैको भर्ताभूद्भैक-  
[रत्नद्यु]तिखचितचतुःसिन्धु-
- 19 चिचांशुकायाः ॥ <sup>24</sup>यं स्वामिनं राजगुणैरनून्मासेवते चा[वतरा]नुरक्ता ।  
उत्साहमन्त्रप्रभुशक्तिजम्भीः पृथ्वीं स-
- 20 पत्नीमिव शीलयन्ती ॥ <sup>25</sup>तस्माद्द(ह)भूव सवितु[र्व्यस्रकोटिवर्धी] काले]न  
चन्द्र इव विग्रहपालदेवः । विश्व[?]प्रिये-
- 21 य विमलेन कक्षामयेन येनोदितेन दक्षितो [सुवन]स्य तापः ॥ <sup>26</sup>[दिशे  
प्राचि] प्रभुरपयसि स्वच्छभापीय तो-
- 22 यं खैरं भान्वा तदनु मलयोपत्यकाचन्दनेषु [।] कृत्वा [सान्त्रैस्तद्व  
जडतां] श्रीकदरैरभ्यतुल्याः प्राप्तेया[न्नि]-
- 23 : कटकमभजन् यस्य सेनागजेन्द्राः ॥ <sup>27</sup>इतस[कक्ष]विपक्षः सङ्गरे [वा-  
(वा)ऊ]दर्यादनधिहृतविलुप्तं राज्यमा-

<sup>20</sup> Metre, Śārdūlavikrīḍiḡa.

<sup>21</sup> This is the reading of the Aṃgāchhī plate also. Read शाक्यौ.

<sup>22</sup> Metre, Vasantatīlakā.

<sup>23</sup> Metre, Sragdharā.

<sup>24</sup> Metre, Indravajrā.

<sup>25</sup> Metre, Vasantatīlakā.

<sup>26</sup> Metre, Mandākrantā. In the Aṃgāchhī plate this verse occurs in the description of Vīgrahapāladeva III. (lines 19 and 20).

<sup>27</sup> Metre, Mālinī.

- 24 साद्य पित्रम् । निहितचरणपद्मो भूभृतां मूर्ध्नि तस्मादभ[वद्वनि]पाणः  
श्रीमहोपासकदेवः । स ख-
- 25 सु भागीरथीपथप्रवर्त्तमान[नानाविध]गौ[वा]टकसम्पादितसेतुव[न]न्व-  
निहितसै[शै]लसि[शि]खरश्रेणीविभ्रमा-
- 26 त् । <sup>28</sup>निरतिशयघनघनाघनघटाग्रामाश्रयमानवासर[लक्ष्मी]समारब्ध[व्य]-  
सन्ततजलदसमयसन्देहात् ।
- 27 उदीचीनानेकनरपतिप्राभृतीकृता[प्र]मेयहयवाहिनीखरखुरोखातधू-  
लीधूसरितदिगन्तरा-
- 28 लात् । परमेश्वरसेवासमायाताश्रेयजन्तु[न्तु]द्धीपभूपात्रानन्तपादातभर-  
नमदवनेः । वि[ज्ञा?]सपुरसमा-
- 29 वासितश्रीमज्जयस्कन्धावारात् । परमसौगतो महाराजाधिराजश्रीवि-  
ग्रहपाणदेवपादानुध्यातः पर-
- 30 मेश्वरः परमभट्टारको महाराजाधिराजः श्रीमान्महोपासकदेवः कुशलो ।  
श्रीपुण्ड्रवर्द्धनसुतौ । कोटीव-
- 31 र्धविषये । गोकनिकामखलान्तः पातिखसम्ब[म्ब][द्वावि]च्छिन्नतपोपेत-  
चूटपक्षिकावर्जितकुरटपक्षि-
- 32 कायामे । समु[प + ]गताश्रेयराजपुरुषान् । राजराजन्यक । राजपुत्र ।  
राजामात्य । महासान्धिविग्रह-
- 33 क । महाक्षपटलिक । महाम[न्त्र]<sup>29</sup> । महासेनापति । महाप्रति-  
हार । दौःसाधसाधनिक । महा[द]खलना-
- 34 [यक]<sup>30</sup> । महाकुमारामात्य । राजस्थानीयोपरिक । दाशपराधिक ।  
चौरोद्धरणिक । दाखि[क] । [दा]खपा-

<sup>28</sup> Here and below many of the signs of punctuation, which it is unnecessary to point out separately, are superfluous.

<sup>29</sup> This appears to be engraved, but the Bhāgalpur and Kmgāchhi plates have महासान्धिविग्रह instead..

<sup>30</sup> These aksharas are almost entirely broken away.

## BACK.

- L. 35 [शि]क । सौ(शौ)क्किक । गौक्किक । ज्ञेय । प्रा-  
 36 नपाण । कोट्टपाण । अकरत्त । तदायु-  
 37 क्तविनियुक्तक । हस्यशोभनौव(व)लव्या-  
 38 घृतक । किशोरवडवागोमहिष्यजावि-  
 39 काध्यत्त । दूतप्रेषणिक । गमागमिक ।  
 40 अभित्तरमाय । विषयपति । ग्रामपति । [तरि]क । गौड । माणव ।  
 खस । ह्वण । कुलिक । कर्साट । ला[ट ]]  
 41 चाट । भट । सेवकादीन् [1] अन्यांश्चाकौर्त्तिवान् राजपादोपजीविनः  
 प्रतिवासिनो ब्रा(ब्रा)ह्मणोत्तरांश्च । महत्त-  
 42 मोत्तमकुटुम्बि(म्बि)पुरोगमेदान्प्रचण्डालपर्यन्तान् । यथार्हं मानयति ।  
 वो(वो)धयति । समादिशति च विदित-  
 43 मस्तु भवतां । यथोपरिनिखितोऽयं ग्रामः स्वसीमाढयूतिगोवरपर्यन्त-  
 सतकः । सोद्देशः साम्रम-  
 44 धूकः । सजलस्थलः । सगर्त्तावरः । सदशापराधः । सचौरोद्धरणः ।  
 परिहृतसर्व्वपौडः । अचाट-  
 45 भटप्रवेशः । अकि[चिद्वाह]ः<sup>31</sup> । समस्तभागभोगकरहिरण्यादिप्रव्याय-  
 समेतः । भूमिच्छिन्न्या-  
 46 येन । आचन्द्रार्कचितिसमकालम् । मातापित्रोरात्मनश्च पुण्यप्रसो-  
 (शो)भिद्वये । भगवन्तं बु(बु)द्धमट्टार-  
 47 कमुद्दिश्य । परास(श)रसगोत्राय । शक्ति । वशिष्ठ । परास(श)र-  
 प्रव[राय ] । . . . [द ?]सन्न(ब्र)ह्मचारियो । वाज-  
 48 . शाखाध्यायिने । भीमान्सन्ध्याकरणवर्कविद्याविदे<sup>32</sup> । वृत्तिपदग्राम-  
 विनिर्माताय । चवटिग्रामवास्तथा-

31 The Bhāgalpur and Kmgāchhi plates have अकिचिन्नपाहः

32 Read भीमासा.

- 49 य । भट्टपुत्ररिचिकेशपौत्राय । भट्टपुत्रमधुश्रु(ख)दनपुत्राय । भट्टपुत्र-  
[कृष्णादि]त्यस(श)र्मेण विश्रु(व)वसंक्रा-
- 50 तौ विधिवत् । गङ्गायां स्नात्वा शासनीकृत्य प्रदत्तोऽस्मानिः । अतो  
भवद्भिः सर्वैरेवानुमन्तथ-
- 51 म् । भाविभिरपि भूपतिभिः । भूमेर्दानफलगतैरवात् । अपहरणे च  
महानरकपातभयात् ।
- 52 दानमिदमनुमोद्यानुपाजनीयम् । प्रतिवासिभिश्च क्षेपकरैः । आशा-  
न्भवविधेयीभूय यथाकालं
- 53 समुचितभागभोगकरहिरण्यादिप्रत्यायोपनयः कार्यं इति ॥ सम्पत् . . .  
[न ?]दिने .<sup>35</sup> भवन्ति चात्र
- 54 धर्म्मांशुश(शा)सिनः स्त्रोकाः ॥ <sup>34</sup>व(व)ज्रभिर्वसुधा दत्ता राजभिस्सगरा-  
दिभिः । यस्य यस्य यदा भूमिस्तस्य तस्य
- 55 तदा फलम् ॥ भूमिं यः प्रतिगृह्णाति यश्च भूमिं प्रयच्छति । उभौ तौ  
पुण्यकर्म्माणौ नियतं स्वर्गगामिनौ ॥
- 56 गामेकां स्व[र्ग]मेक[श्च] भूमेरप्यङ्गमङ्गलम् । हरश्चरकम(मा)याति  
यावदाहृतसंज्ञवम् ॥ षष्टिं [वर्ष]सहस्रा-
- 57 णि स्वर्गे मोदति भूमिदः । आक्षेप्ता चानुमन्ता च तान्येव नरके वसेत् ॥  
स्वदत्ताभ्यरदतां वा यो हरेत्
- 58 वसुधराम् । स विष्ठायां त्रि(ह)मिभृत्वा पितृभिः सह पश्यते ।  
<sup>35</sup>सर्वानेतान् भाविनः पार्थिवेन्द्रान् भूयो भू-
- 59 यः प्रार्थयन्नेव रामः । सामान्योयं धर्मेष्टे(से)तुर्मुपायां काले . काले  
पाजनीयो भवद्भिः ॥ <sup>36</sup>इति कमलद-
- 60 ताम्बु(म्बु)विन्दुजोलां श्रियमनुचिन्त्य मनुष्यजीवितश्च । सज्जनमिदमुदा-  
हृतश्च वृ(वृ)द्धा न हि पुरुषैः परकीर्त्त-

<sup>33</sup> The figures for the year and day and the name of the month are entirely illegible in the rubbings.

<sup>34</sup> Metre, Sloka (Anushtubh); and of the next four verses.

<sup>35</sup> Metre, Śālini.

<sup>36</sup> Metre, Pushpitāgrā.

- 61 यो विजो[प्याः] । <sup>३७</sup>ओमहोपाकदेवेन [दिनमेष्टोप ?]पादिते । न[ट्ट]-  
ओवामनो मन्त्रो शासने दूतकः कृतः ।
- 62 [पोस]<sup>३८</sup>ओग्रामनिर्यात . . . दित्य[सूनुना] । इदं शासनमुत्कीर्णं  
ओमहोधरप्रित्तिना ।

*Some of the Muhammadan Coins collected by the Afghan Boundary Commission from an historical point of view.—By MAJOR H. G. RAVERTY.*

I beg to be allowed to offer a few remarks on the coins procured by the Afghan Boundary Commission, described by Dr. A. F. Hoernle, the Supplementary No. IV of 1889 of the Society's Journal having just reached me.

I do not pretend to a knowledge of numismatics, but of history: my object here is to clothe these dry bones with a short account of some of the chief events in the lives of those rulers in whose names they were coined; and even from this, brief as it is, we shall again have a proof that truth is often stranger than fiction, and we shall find that there is more connection between some of these rulers in their lives and misfortunes than might be expected.

The coin, serial number 41, which has been described as of "Alá-ud-dín Muhammad bin Takash," belongs really to his father, who ascended the throne of *Khawárazm* in Rabi'-us-Sání, 569 H. (1173-74, A. D.), and died in the middle of *Shawwál*, 596 H. (1199 A. D.); for if the inscription be read, we shall find that it is "Us-Sultán-ul-A'zam, 'Alá-ud-Dunyá wa ud-Dín, ABÚ-L-MUZAFFAR, TAKISH, bin *Khawárazm Sháh*.\* He obtained possession of *Nishápúr*, the capital of Mu'ayyid-i-A'inah-dár's territory, mentioned farther on, in 569 H. (1173-74 A. D.).

That it is a mistake to call this a coin of 'Alá-ud-Dín Muhammad may be seen from the following coin 44, which bears this inscription, "Us-Sultán-ul-A'zam, 'Alá-ud-Dunyá wa ud-Dín, ABÚ-L-FATĤ, MUHAMMAD, bin us-Sultán Takish." The title, *Abú-l-Muzaffar*, being that of *Takish Khán*, and *Abú-l-Fatĥ*, that of the son. The other title, 'Alá-ud-

<sup>37</sup> Metre, *Sloka* (Anushtubh).

<sup>38</sup> The *aksharas* in brackets are illegible here; but the word पोसओग्राम is quite clear in the *Kmgáchhi* plate.

\* See *Tabakát-i-Násiri*, pp. 239—244.

Danyá wa ad-Dín, was borne by both. Before the latter came to the throne he was styled Kutb-ud-Dín, Muḥammad, but, on his accession, assumed that of 'Alá-ud-Dín, the title borne by his father.\* The inscriptions given on all the other coins after No. 44; namely 49, 50, 71, 98, 100, 101, 103, 105, 106, and 109, although not worded in the same manner, all have Abú-l-Fath, and only one (No. 44) has Abú-l-Muzaffar."

Sultán Takish Khán, "the Khwárazm Sháh," as the Turk rulers of that territory were styled, was a very wise and sagacious Monarch of whose witticisms many anecdotes are related. He had a strong-minded wife, who, out of jealousy, on one occasion, shut him into a hot bath; and when some of the lords of his Court, who became aware of it, released him, he was quite livid, and one of his eyes was nearly destroyed. He was disloyal to the Khalifah, and this disloyalty was, subsequently, the cause of much misfortune to his son and successor, and his grandson, Sultán Jalál-ud-Dín, Mang-barní. He was also hostile to the Shansabání Tájik rulers of Ghúr.

Sultán Muḥammad, the Khwárazm Sháh, son of Sultán Takish Khán, was that famous, but unfortunate, Sultán whose extensive empire was invaded by the Chingiz or Great Khán and his Mughal hordes, an account of whose reign is given in the Tabakát-i-Násirí, pp. 253-279. His sway extended over a great part of Asia, from the frontiers of China to the frontiers of the present Turkish empire, and from the Indus to the Persian Sea.† He came to the throne in the middle of 596 H. (1200 A. D.). He reduced Hirát on three different occasions, and, towards the close of his reign, penetrated into Siberia, where "the light of twilight did not disappear to the vision; and, in the direction of the north, the glow seemed merely to incline from west to east, and the light of dawn appeared, and the day broke." He died in great misery and distress of mind and body in Shawwál, 617 H. (1220 A. D.). His son was the famous hero, Sultán Jalál-ud-Dín, Mang-barní, the Khwárazm Sháh, who, after keeping the Mughals at bay with a handful of men, plunged into the Indus on his charger before the Chingiz Khán and his sons, and the whole Mughal army, and crossed in safety notwithstanding the volleys of arrows showered on him.‡

\* Tabakát-i-Násirí, p. 253.

† He likewise held sway over the tract called Banián, and sometimes known as the territory of the Koh-i-Júd, that is, the country east of the Indus, as far as the banks of the Jiblam or Bihat, north as far as the mountains of Kashmír, and south as far as, and including, the Koh-i-Júd or Salt Range. The Kárlugh Turks in the Sultán's service held it for him. This tract now comprises what are termed the "Hazara" and Ráwal Pindí districts of the Panjáb.

‡ See Tabakát-i-Násirí, p. 291.

The mint name at page 10, which, it is said, has been read as "*Balúquán*" or "*Talúquán*" by Mr. Rodgers, is an error for بيلقان—Belekán, a city of Arrán, between *Shirwán* and *Azarbáiján*.

That on page 11 read as "*Taliquán*," is طالقان—*Tál-kán*, with no 'i' in it, and does not refer to the place styled "*Talikhan*" in Walker's and other maps, which was called "*Tál-kán of Tukhristán*," east of *Kunduz*, but "*Tál-kán*" here meant (also written طابقان—*Táe-ghán* by the *Mughals* and other *Turks* who change *k* into *gh*), "*of Khurásán*," situated between *Balkh* and *Marw-ar-Rúd* on the *Murgh-áb*, three days journey from *Marw-ar-Rúd* in one direction, and the same from *Shabúrghán* or *Shafúrkan* (the "*Shibarghan*" and "*Shibirkhan*" of the maps, in another, the *Murgh-áb* river separating them. *Tál-kán* of *Khurásán* was a famous stronghold; particulars respecting it will be found at pages 1003 and 1008 of the *Tabakát-i-Násirí*, and also of its capture by the *Mughals*, at page 1012.

The officers of the *Afghán Boundary Commission* were several times within a few miles, and sometimes close to, most of the famous strongholds captured or invested by the *Mughals* at this period, without knowing anything about them. I could have furnished them with much information on this subject; and had the Government of India supplied them with a copy of my translation of the work in question, they might have found, and explored, many famous places, and not have been ignorant of their past history.\*

The mints of the coins Nos. 58 and 59 are the same *Shabúrghán* or *Shafúrkan*, according to the same change of letters. *Sultán Muḥammad* first obtained sway over *Hirát* in 598 H. (1201-2 A. D.), and, on that occasion, coin No. 72 appears to have been struck; and again in 600 H. (1203-4 A. D.), and finally in 607 H. (1210-11 A. D.). The district called the *Zamín-i-Dáwar* followed, and on that occasion No. 71 was probably coined.

The mint name of Nos. 76 and 81 must certainly be سغد—*Sughd*, not "سعر," which is meaningless, nor سمر. *Sughd* means a depression, a place where rain water collects; and the name of a town and

\* The following is a specimen. In a book lately published, entitled "*Northern Afghanistan, or Letters from the Afghan Boundary Commission*" by Major C. E. Yate, C. S. I., p. 184 is the following:—"What the name of *Panjdeh*, literally the five villages, originally arose from, I cannot say. From the fact of the *Sariks* being divided into five clans or sections, each with its separate settlements, it would look at first sight as if they had given the name to the place; but this is not the case, as the name is of ancient date, being mentioned, so *Rawlinson* says, by *Háfiz Abrú* in A. D. 1417."

In the *Tabakát-i-Násirí* he would have found that *Panj-dih* was a well known place three centuries and a half before *Háfiz Abrú* wrote.



small district near Samr-kand, famous for its salubrity. Here the rulers generally took up their quarters, and it is famous as the Sughd of Samr-kand. The Sultān reduced that territory in 608-609 H. (1212-13 A. D.), and subsequently put its ruler, the Afrásiyábi Khán, 'Uḡmán, to death.

Likewise, the correct name of the mint of Nos. 77, 78, 84, 87, 88, 89 and 90, is not كزروان, but a well-known place called Guzarwán—جزروان. The point of the ز appears to have been mistaken for ر. The 'Arabs, and people of 'Arab descent, called it Juzarwán—جزروان, changing hard 'g' into soft 'j,' as in Púshang and Fúshanj, Sijis-stán and Sigiz-stán. I notice in the note at page 51 of the paper on these coins, that Prof. Tiesenhauer read this word جززوان, assuming that the point was on the third instead of the second letter. It is a well-known tract, and appears in our very latest new map under the incorrect name of "*Gurziwan*."\*

The Sultān obtained possession of Ghaz-nih [nih is the Tájzik for a city†: "*Ghaznah*" is incorrect] by surprise during the absence of Sultān Táj-ud-Dín, I-yal-duz, in 611 H. (1214-15 A. D.).

Respecting the Shansabání Tájziks of Ghúr and their coins, the letters read as حسلو after the name Sám‡, cannot be correct, much less قشلو, which is purely Turkish. The full title of this Sultān, the elder brother and suzerain of Sultān Mu'izz-ud-Dín, Muḥammad-i-Sám of Ghaznih, the conqueror of Hindústán, who established the Muḥammadan religion and power at Dihlí, was, Us-Sultān-ul-A'zam, Ghiyās-ud-Dunyá wa ud-Dín, son of [Bahá-ud-Dín] Sám [See XI of the Shansabání Tájziks of Ghúr, Tabakát-i-Násirí, p. 341], *Kasim-i-Amir-ul-Muminin*." Consequently, the letters supposed to be حسلو and قشلو, are, doubtless, the word *Kasim*—قسیم in the last title of the Sultān.

Coin, No. 124, with the names and titles of both brothers on it, and the dato 699 H., was coined, probably, immediately after the death of Sultān Ghiyās-ud-Dín, Muḥammad, when his brother, Sultān Mu'izz-ud-Dín (always mis-called Shiháb-ud-Dín by Firishtah and such compilers, and Shahab-ud-Dín by English writers) became supreme Sultān of Ghúr and Ghaz-nih, and their dependencies.

No. 126 with the names of "*Taju-d-din Ildaz*" and Sultān Mu'izz-ud-Dín, Muḥammad, said to be thereon, but the inscriptions on which are not given, would be one of Táj-ud-Dín, I-yal-duz's coins, after the assassination of the Sultān by the Khokhars (always mistaken for "Gakhars," even in *Imperial Gazetteers*, under the grotesque names of

\* See Tabakát-i-Násirí, pp. 37c, 1003, and other places.

† In the oldest histories, and also by Bábar Bádhsháh, the name is written as above, *Ghasni* is a modern form of the name.

[‡ No. 116, Ed.]

"*Gickers*," "*Ghukkurs*," "*Gakkhars*" and the like). *Táj-ud-Dín, I-yal-duz*, was his favourite *Mam-lúk*, and held the government of *Ghaz-nih* and its dependencies; and it was always intended by his sovereign, who had no son, and but one daughter, that he should succeed him on the throne of *Ghaz-nih*.\* After his death, *Sultán Táj-ud-Dín, I-yal-duz*, is said to have coined his money with the name of the late *Sultán* thereon, in which he styled himself, "the servant and slave of the Martyred *Sultán*".† Both this Turk slave, as well as his *Tájík* sovereign, like others before and after them, have been turned into "*Paṭáns*" or *Afgháns*, and this ridiculous term is still applied to Turks, *Tájíks*, *Jats*, *Sayyids*, etc., as well as *Afgháns*, after it was shown to be wrong and mis-applied, by Elliot in his work a long time ago, as well as by myself. *Sultán Táj-ud-Dín, I-yal-duz*, was the first of the Turk *Mam-lúks* who succeeded to sovereign power after his *Shansabáni Tájík* sovereign was assassinated.

No. 139. Coin of *Malik Tughán Sháh*. *Tughán Sháh* was the second of the *Mu'ayyidiyah* *Maliks* of *Nishápúr* and its dependencies. His father was one of the Turk slaves of *Sultán Sanjar*, who was entitled *Mu'ayyid-ud-Dín*, and he was the *Sultán's A'ínah-dár*, or Mirror-bearer, hence he is generally styled *Mu'ayyid-i-A'ínah-dár*. When *Sultán Sanjar* raised several slaves to rule over the great provinces of his empire, *Mu'ayyid-ud-Dín* was made ruler of the *Nishápúr* territory. After the *Sultán's* captivity with the *Ghuzz* Turks, and his subsequent release and death, *Mu'ayyid-ud-Dín* pretended to pay obedience to the late *Sultán's* nephew, *Sultán Rukn-ud-Dín, Mahmúd*, son of *Muḥammad Khán*, son of the *Bughrá Khán*, who had married *Sultán Sanjar's* sister, and who had been set up over *Máwará-un-Nahr* and part of *Khurásán*, but *Mu'ayyid-ud-Dín* subsequently seized him in the fifth year of his stormy reign, and put out his eyes, after which he himself assumed sovereignty over *Nishápúr* and parts adjacent; and his sway extended for a time from *Rai* to *Hirát*.

He subsequently joined *Sultán Sháh* (*Sultán Sháh* is his name, not a title), who had rebelled against his brother, the *Sultán, Abú-l-Muzaffar-i-Takish Khán*, the *Khwarazm Sháh*, and was taken captive in battle by the *Sultán* and put to death in 570 H. (1174-75 A. D.) the date on the coin.‡

*Malik Tughán Sháh*, *Mu'ayyid-ud-Dín's* son, who succeeded him, passed his days in riot and jollity. In order to strengthen himself against the *Khwarazm Sháh*, he contracted a marriage for his son, named *Sanjar Sháh*, with the daughter of *Sultán Ghiyāṣ-ud-Dín, Muḥammad-i-*

\* *Tabakát-i-Násiri*, p. 500.‡ *Tabakát-i-Násiri*, p. 128.† *Tabakát-i-Násiri*, p. 497.

Sám of Ghúr, the enemy of Sultán Takish; but, as soon as Malik Tughán Sháh died in 581 H. (1185-86 A. D.), Sultán Takish invaded his territory, seized Malik Sanjar Sháh, and carried him off to Khwárazm. Sultán Takish then contracted marriage with Sanjar's mother, and married him to a daughter of his own. Consequent on this, and his captivity, the marriage contract with the daughter of Sultán Ghiyás-ud-Dín, Muḥammad-i-Sám, was annulled, and she was contracted to her kinsman, Malik Ziyá-ud-Dín, Muḥammad, surnamed "the Pearl of Ghúr," son of Malik Shujá-ud-Dín, Abí-'Alí. He was the uncle's son of the two Sultáns, her father and uncle; but he had previously contracted marriage with a Turkish hand-maid, the mother of his son, Rukn-ud-Dín, I-rán Sháh,\* and therefore he was not capable, according to the author of the *Tabakát-i-Násirí*, of consummating his marriage with that princess. On the death of Sultán Ghiyás-ud-Dín, Muḥammad-i-Sám, her father, in 599 H. (1202-3 A. D.), her uncle, Sultán Mu'izz-ud-Dín, Muḥammad-i-Sám, conferred on Ziyá-ud-Dín, Muḥammad, the throne of Fíruz-Koh, the territories of Ghúr, Gharjistán, and the Zámín-i-Dáwar, and the title, Malik-ul-Hájí—for he had performed the pilgrimage to Makkah and Madinah—'Alá-ud-Dín, Muḥammad, was assigned him. He was dispossessed of his territory by his kinsman, the son of Sultán Ghiyás-ud-Dín, Muḥammad, namely, Sultán Ghiyás-ud-Dín, Maḥmúd; and the coins Nos. 133, 134, 135, and 136, are Maḥmúd's, on which he is styled "Us-Sultán-ul-A'zam, Ghiyás-ud-Dunyá wa ud-Dín, Abú-l-Fath, Maḥmúd, son of Muḥammad-i-Sám." It was this Sultán Maḥmúd, who confirmed Malik Táj-ud-Dín, I-yal-duz, in the sovereignty of Ghaz-nih, and Malik Kutb-ud-Dín, I-bak-i-Shil, in the sovereignty of Dihlí. After Sultán Maḥmúd's assassination in 609 H. (1212-13 A. D.), the Malik-ul-Hájí, 'Alá-ud-Dín, Muḥammad, was restored for a time to the throne of Ghúr by Sultán Táj-ud-Dín, I-yal-duz, in 611 H. (1214-15 A. D.), and he then took the title of Sultán, after the death in battle of Sultán 'Alá-ud-Dín, Utsúz, of Ghúr, (No. XXI). The Malik-ul-Hájí was the last of the Shansabáni Tájzik sovereigns of Ghúr. He, out of necessity, submitted to Sultán Muḥammad, the Khwárazm Sháh, and retired voluntarily to Khwárazm in 612 H. (1215-16 A. D.).†

Respecting the princess—the virgin bride—the daughter of Sultán Ghiyás-ud-Dín, Muḥammad-i-Sám, betrothed to Malik Tughán Sháh's son, Sanjar Sháh, and afterwards to the Malik-ul-Hájí, we have some

\* Rukn-ud-Dín, I-rán Sháh, was put to death in 607 H.; and the author of the *Tabakát-i-Násirí*, then in his 15th year, was standing at the palace gate at Fíruz-Koh when his head was brought in. See my translation, p. 396.

† See *Tabakát-i-Násirí*, pp. 346, 391, and 417, where more about him will be found.

interesting particulars from one personally acquainted with her and the other personages here named. She was styled Máh Malikah, and entitled, Jalál-ud-Dunyá wa ud-Dín; and her mother was the daughter of Sultán 'Alá-ud-Dín, Ḥusain-i-Jahán-soz (No. XIV). She knew the Qur'án by heart, knew likewise the Shihábí traditions, and her handwriting "was as pearls befitting a king." The reason why she passed from the world a maid has been already mentioned. The author of the *Tabakát-i-Násirí* says (p. 392), that, "In beauty, purity, and self-restraint, she had no equal in the world," and adds:—"The mother of the writer of these pages was the foster-sister and school-companion of this princess; and this devotee [himself] was brought up in the princess's own hall of favour and her *ḥaram* of chastity, up to the period of his entering upon the bounds of adolescence, in the service of her royal dwelling, and her private apartments. The maternal uncles of this devotee and his maternal ancestors, were all attached to the service of that princess's Court, and to the Court of her father; and this humble individual [himself] received many proofs of that lady's favour and bounty. God reward her! At last her martyrdom and death took place in the territory of 'Irák during the calamities which arose on the irruption of the infidels [the Mughals]. The mercy of the Almighty be upon her!" After Sultán Muḥammad, the Khwárazm Sháh, herein mentioned, had reduced the territories of the Sultáns of Ghúr and Ghazniḥ under his sway, all except their territories beyond the Indus, the members of the different Shansabání families were taken to Khwárazm, and the princess was there dwelling, when her last betrothed husband—Sultán 'Alá-ud-Dín, Muḥammad, the Malik-ul-Háji and "Pearl of Ghúr" reached it. He took up his residence near her; and in the Khwárazm dominions they dwelt for some time, until his death about three years after. He was buried adjacent to the tomb of the Shaikh Abú-Yazíd at Bustám.\* The princess had yet to bear further vicissitudes of fortune; but, at last, found rest from the world's troubles, as just related.

Respecting Coin No. 141, and the "Boní Zengí Aṭabegs of Mosil" Badr-ud-Dín, Lú-lú, was, certainly, a ruler of Maugil, and exercised sway over it, but cannot be correctly styled one of the Baní Zangí. They were *Turks*, and their ancestor, entitled the Kasím-ud-Daulah, was Ak-Sunkar, but whose name and Musalmán titles were, Abú Sa'id-i-'Abd-U'llah. He was familiarly known as Baban, the Chamberlain, one of the mam-lúks or slaves of Sultán Malik Sháh, the Saljúk, who made him Wáli of Ḥalab in 481 H. (1088-89 A. D.).

Malik Badr-ud-Dín, 'Abú-l-Fazá'il, Lú-lú, was an *Armenian* slave,

\* See *Tabakát-i-Násirí*, pp. 419-20.

one of the mam-lúks of the Malik-ul-'Adil, Núr-ud-Dín, Arsalán Sháh, ruler of Mausi, Shám, and the Diyár-i-Bakr. On the death of Arsalán Sháh, the tenth of the dynasty, in Rajab, 607 H. (1211 A. D.), his son, 'Izz-ud-Dín, Mas'úd, entitled the Malik-ul-Káhir, succeeded. He left the power in the hands of Badr-ud-Dín, Lú-lú. When 'Izz-ud-Dín, Mas'úd died on the 27th Rabi'-ul-Awwal, 615 H. (1218 A. D.), his brother, 'Imád-ud-Dín, Zangí, who was governor of 'Amádhah, ruled over that part for a time, but shortly after died. His infant son for a short time succeeded, but he also soon died, and the dynasty terminated. Malik Badr-ud-Din, Abú-l-Fazá'il, Lú-lú, who used to direct the affairs of his territory, continued to rule over Mausi. On the appearance of Hulákú Khán, the Mughal, in those parts, Lú-lú tendered submission to him at Marághah, in Rajab, 656 H. (1258 A. D.), and was confirmed in possession of the territory.\* Badr-ud-Din, Lú-lú, died in 657 H. aged 96, but some say he was over a hundred. His son, 'Ismá'il, entitled the Malik-us-Sálih, was permitted to succeed him, and Hulákú Khán gave him in marriage the daughter of the gallant, but unfortunate Sultán, Jalál-ud-Dín, Mang-barní, the Khwárazm Sháh, then with other Muḥammadan princes and princesses, captives in the hands of those infidels. The Malik-us-Sálih unable longer to bear this iron yoke, subsequently joined his co-religionists of Miṣr against the infidels, but he was taken captive, after holding Mausi against them for several months, in Ramazán, 661 H. (1263 A. D.), and put to death in the most brutal manner by Hulákú's orders. The ferocious barbarian—"the great Hulagu"—directed that he should be enveloped in fat tails of the *dumbah* or fat-tailed sheep, sewn up in felt, placed on his back with his hands and feet fastened to the ground by four pegs, and then exposed to the burning heat of the summer sun, until, after a week, as was intended, the tails became putrid, and swarming with maggots, which began to attack the wretched victim, who, for a whole month, lingered in this Mughal torment. It was to such devilish doings as these that Kudúz, the Mam-lúk ruler of Miṣr,† referred when, after he had overthrown the Nú-yín, Kaibúká, the Náe mán, and taken him prisoner, near the 'Ayn-i-Jálút—Goliath's Spring—in Syria, he taunted him, saying that "they could do nothing like men." The Malik-us-Sálih, 'Ismá'il, left a son, a babe of two or three years old, named 'Alá-ud-Dín, who was taken back to Mausi, and cut in twain, one-half of the child's corpse being suspended on one side of the Dijlah, and the other on the Mausi side, and left there to rot as a warning of Mughal vengeance. What became of Sultán Jalál-ud-Dín's daughter, the Malik-us-Sálih's wife, has not transpired.

\* See also *Tabakát-i-Násirí*, p. 1247.

† He was a Turk-mán, and the Turk-máns were the hereditary enemies of the Mughals.

It will be seen, therefore, that a great and curious connection exists between the whole of the persons here mentioned, and the rulers whose names are impressed on these coins, from Sultán Takīsh Khán of Khwárazm, to the Malik-uṣ-Ṣálih 'Isma'il of Maṣṣil.

#### COINS OF SIJISTÁN.

Coin No. 149, read as that of "Asadu-d-dín bin Harab," cannot possibly refer to Asad-ud-Dín, for Asad, which I presume the top word on the reverse is supposed to represent, is written *asad* not *as* as on the coin, and this last is certainly meant for *as* 'uzd—'support,' 'assistance,' also 'an aider or supporter,' and part of the title, 'Uzd-ud-Din. When Malik Shiháb-ud-Dín, Mahmúd, son of Harab (Malik IX in the list), took possession of Sistán, another party set up Sháh 'Uḡmán, a grandson of Násir-ud-Dín, 'Uḡmán, son of Táj-ud-Dín-i-Harab, who sought assistance from the Khwárazmí officers of Kirmáns, and when Malik Shiháb-ud-Dín, Mahmúd, was put to death, his brother, Amír 'Alí, the Záhíd or Recluse, was set up. Subsequently we are told (page 200 of the *Tabakát-i-Násirí*,) that, "the rival Maliks of Ním-roz were struggling against each other," and, that, "the grandson of Násir-ud-Dín, 'Uḡmán, whom they styled by the name of Sháh, sought assistance from the Malik of Kirmán," etc. The coin in question may possibly have been coined by one of these rivals, who assumed the titles of 'Uzd-ud-Dín, and Abú-l-Muzaffar. It must also be remembered that the Khwárazmí officer sent to the aid of Sháh 'Uḡmán, Binál-Tigín, the Turk, who appropriated Sijistán on his own account, was entitled Táj-ud-Dín. Be these speculations what they may, I can only say, that the names given in my list in the Journal Part I, for 1885, are the whole of those mentioned in history; and I have left no accessible history unsearched.

#### "MONGOL IL-KHANS OF PERSIA."

I am much puzzled to understand why some European writers, who surely must know better, will persist in styling the Chingiz or Great Khán—for that is the meaning of the word Chingiz—"JINGIS" Khán (see Journal No. 2 of 1887, page 90, first line in the lower inscription),\* and why they suppose that he coined money, more particularly coupled with the name of the Khalifah, "Un-Násir-ud-Dín U'llab, Amír-ul-Muminín" thereon. The title Khákán-i-A'zam is much more applicable to the Ká'án, Uktáa, or even to Hulá-

\* When it is even cut in stone or marble on a tomb چنگز, not چنگیز, people will still call it *Jingís* and *Jinjís*.

kú Khán, the first of the Il-Kháníáns, than to his grandfather, the Qhingiz Khán,\* but the coin, No. 153 is evidently that of a Musalmán ruler, a feudatory of the Khiláfat, who had to submit to the hard yoke of the infidel Mughals† and to impress it with the semi-Turkish title of Khákán-i-A'zam; for Khákán is a purely Turkish word. The Khalífah, Uḡ-Násir-ud-Dín U'llah, died in Ramazán, 622 H. (1225 A. D.), up to which period the Mughals had made no permanent conquests in Irán Zamín; and Sultán Jalál-ud-Dín, the Khwárazm Sháh, was still powerful in those parts until 628 H., six years after that Khalífah's decease. It was not until the reign of the Ká'án (قائان), Uktác, after his becoming firmly established on the throne—for it was not filled for two years and a half after the death of the Qhingiz Khán—that armies were despatched westwards since the return of the Qhingiz Khán, and his death. In 626 H. (1229 A. D.) the Nú-yín, Jurmághún, was sent into 'Irák, against Sultán Jalál-ud-Dín, the Khwárazm Sháh, and the Nú-yín, Mangútah, (the same who afterwards invested Uchchh) towards Ghaz-nih. It is stated in the history of that reign, that to Mangútah was assigned the occupation of Tukháristán, Kunduz, and Tal-kán; for the then Musalmán Maliks of Khurásán, Qhúr, Kirmán, and Fárs, all proceeded to the presence of the Great Ká'án, Uktác, at Kará-Kuram, and requested that Shahnáhs or Intendants might be sent to them, thus placing their necks under the yoke‡ “After this,” says the historian, “Khurásán began to thrive again;” but the army of above 100,000 horse under Jurmághún slaughtered and ravaged all the tracts they passed through§; and it was part of Jurmághún's forces which surprised the camp of Sultán Jalál-ud-Dín, the Khwárazm Sháh, who was put off his guard by the false report of a patrol. The Sultán, who was asleep at the time, succeeded in making his escape. He turned devotee and disappeared from the scene, but is said to have lived for sixty years after that. The Shaikh, 'Alá-ud-Daulah, Al-Byabánki-us-Simnání, relates under the events of the year 688 H. (1289 A. D.) as follows:—“When at Baghdád, I used daily, at noon, to wait upon the pious and venerable Shaikh, Núr-ul-Hakḡ wa ud-Dín, 'Abd-ur-Rahmán-i-Isfaráiní—may his tomb be sanctified! I happened to go upon one occasion, at the usual hour, and found him absent from his abode, a

\* I do not think any history can be named in which it is stated that Timúr-chí, the Qhingiz Khán, ever assumed such a title as “Kháqán,” or Khákán, and in the absence of some such authority for the assertion that he did, the statement may be regarded as purely imaginary.

† See Tabakát-i-Násiri pp. 995 and 1266.

‡ See also Tabakát-i-Násiri pp. 1115 and 1126.

§ See Tabakát-i-Násiri p. 1117.

rather unusual occurrence at that time of the day. I went again on the following morning to wait upon him, and inquired as to the cause of his absence on the previous day. He replied, 'My absence was caused through Sultán Jalál-ud-Dín, Mang-barní, having been received into the Almighty's mercy.' I inquired, 'What, had he been living all this time?' He answered, 'You may have noticed a certain aged man, with a mole upon his nose, who was wont to stay at a certain place,' which he named. I had often remarked the venerable devotee in question; and that was the heroic, but unfortunate Sultán, Jalál-ud-Dín." According to this account Sultán Jalál-ud-Dín could not have died until 688H., about sixty years after the period above-mentioned.

From all this it is quite clear, that the coin in question, No. 153, must be that of one of the Musalmán Maliks, a feudatory of the Khalifah, Un-Náṣir-ud-Dín U'llah, who had to submit at the time of the inroad of the Nú-yins, Jabah and Swídáe, in 617 H. (1220 A. D.), who passed through those parts like a destroying whirlwind, and returned by the northern shores of the Caspian to the presence of the Qhingiz Khán in the fourth month of 620H. (1223 A. D.)

I may also mention, that, in no history is it stated that the Qhingiz Khán coined money, nor is it stated that he ever assumed the title of Khákán, which, as I have said before, is much more applicable to Uktáe than to his grandfather, and to stamp coins with the name of the Khalifah is still more impossible; and, besides, they would have Mughal inscriptions, on one side at least, even if coined in Ī-rán Zamín. For a considerable period the Mughals coined ingots (bálish) only.\* The Īl-Kháníán dynasty, moreover, was not established for thirty-four years after the death of the Khalifah above-mentioned, and the total fall of the Khiláfat at Baghdád; and the first Īl-Khán was Hulákú Khán himself.

Coin No. 174. There was no member of this dynasty named "Quázán," but Gházán (غازان) Khán, the seventh of the dynasty, was one of the most illustrious of them. He was the son of Arghún

\* The bálishs of Uktáe Káán are mentioned in several histories. One, the Lubb-ut-Tawárikh, goes farther and says, referring to the great liberality of the Káán, that no one ever left his dargah without experiencing it, and that during his reign he expended in this manner no less than 160,000 tománs of bálishs of gold. It is also stated, that, according to some accounts, the bálish-i-sar contained 500 miṣkáls; according to other accounts, it was of the value of eight dirams and two dángs; and according to others, of the value of eight dínárs and two dángs. The Musalmán diram and dínár are said to have been equivalent to a sequin or ducat. Another writer, under the head of bálish-i-sar, says, it contained eight miṣkáls and two dángs of gold, and was in use by the sovereigns of the Turks and Mughals. See also Tabakát-i-Náṣirí, p. 1141.



**Khán**, son of **Abaká Khán**, son of **Hulákú**, who succeeded in the year 694 H. (1294-95 A. D.). He was the first of them who became a convert to Islám in that same year, and commanded all churches of the Christians, and idol temples (of **Mughals**) at **Tabríz** to be destroyed; consequently, previous to that period, any coin with the **Musalmán kalimah** thereon, even with the name of one of the **Il-Kháns** on it as well, would, in all probability, be a coin of a **Musalmán** feudatory under the yoke of these **Mughals**, who would scarcely have adopted the **Musalmán kalimah** on their coins when they were more inclined to the Christians. **Hulákú's** wife, **Dúkúz Khátún**, and several others among them, were Christians. On his conversion, **Gházán Khán** assumed the title of **Sultán Mahmúd-i-Gházán Khán**. He died in **Shawwál** 703 H. (1303 A. D.), near **Kazwín**, and was buried at **Tabríz**, where a lofty domed tomb was raised over him, and is probably still in existence.

With respect to the coin No. 178, with the name of "**Sultán Arghún**," thereon, the words **لعلك نوبتي الملك من تشا** on the margin, is part of a verse from the **Kur'án**, Chapter 58:—"Possessor of all power, THOU givest dominion unto whom THOU wilt, and THOU takest away dominion from whom THOU wilt; THOU exaltest whom THOU wilt, and THOU humblest whom THOU wilt." This is the same verse which **Abú Sulímán**, **Dá'úd-i-Jaghar Beg**, the **Saljúk**, heard the **Mu'azzin** at **Marw** reciting, when the envoy of **Sultán Mas'úd** of **Ghaz-nih**, presented himself before him. **Dá'úd** was at that time seated on his saddle cloth spread on the ground, with his saddle to support him, and he ordered this verse to be written down and given to the envoy as his answer to the **Sultán's** demands.

The mint name on coin No. 183, is not **حنونسان** as "read by Mr. Rodgers," but the well-known place called **جانوشان**—**Janúshán**.

#### "**BUKHÁRÁ** HOUSE OF **TÍMÚR**."

Respecting coin No. 188, it is hardly correct to style the **Sultán Sháh Rukh Mirzá**, as "of the **Bukhárá** House of **Tímúr**," because soon after his accession in **Ramazán**, 807 H. (1404 A. D.), he ruled the whole of his father's dominions, from **Khité** to **Rúm**, and from **Tabaristán** to **Hindústán**, in the western part of which, under the **Masnad-i-A'lá**, the **Sayyid**, **Khizr Khán**, the **khutbáh** was read for him and the money stamped with his name. His capital was **Hirát**, which territory he had governed seven years during his father's lifetime, while his father's capital was **Samr-kand**, not **Bukhárá**. **Sultán Sháh Rukh Mirzá**, was not "**Tímúr's youngest son**,"\* but his second son of four, the eldest having died before his father. **Sultán Sháh Rukh**

\* See Journal for 1887, page 88.

Mírzá died 29th Zí-Hijjah, 850 H. (29th March, 1446 A. D.), after reigning forty-three years, consequently, the coin No. 191 assigned to him, if the date 848 H. is correct, is his, of course, but if 868 H. it is not. It is said to be *counter-struck* with the name of Sultán Abú-Sa'id.\* In the 'Arabic character given at page 41 of Journal, it is *ابوسعید* instead of *ابوسعید* Sultán—Mírzá Abú-Sa'id, Bahádúr Khán—was the grandson of Mírzá Mirán Sháh, Tímúr's fourth son, who ruled in Máwará-un-Nahr and Turkistán, and whose capital was Samr-ḳand. He ascended the throne of Samr-ḳand in Jamádi-ul-Awwal, 855 H. (1451 A. D.), and, some years after, dispossessed the descendants of Sultán Sháh Rukh Mírzá of Khurásán and parts farther west, and acquired the whole power over Sultán, Sháh Rukh Mírzá's dominions, in 861 H. (1456-57 A. D.), and lost it again, but regained it in 863 H. (1458-59 A. D.). He was at last put to death, after being taken captive in battle by the Turk-mán, Ḥasan Beg, the Ak-Kúnílú, who gave him up to Mírzá Yád-gár Muḥammad, son of Sultán Muḥammad, son of Mírzá Bá'e-Sunḳar, the last of Sultán Sháh Rukh Mírzá's descendants, who put him to death 22nd Rajab, 873 H. (January, 1469 A. D.) in retaliation for his putting to death, most unjustly, when he gained possession of Hirát the first time, in 861 H., Gohar-Shád Bigam,† the venerable consort of Sultán Sháh Rukh Mírzá: He ruled over Máwará-un-Nahr, etc., eighteen years, and ten years over those parts and Khurásán and the rest of the empire possessed by the last named monarch.

Coin No. 193. "Husain Baikara, Governor of Khorásán" (?). Mírzá Husain-i-Bá'e-ḳará, was the son of Mírzá Sultán Maḥmúd, one of the sons of Sultán Mírzá Abú-Sa'id, Bahádúr Khán, above-mentioned, who succeeded his brother, Mírzá Sultán Aḥmad, over Máwará-un-Nahr at Samr-ḳand. When his father died in Muḥarram, 900 H. (October, 1494 A. D.), Mírzá Husain-i-Bá'e-ḳará, who succeeded, deprived his brother, Mírzá Sultán 'Alí, of his sight, as was supposed, but his eye-sight was not wholly destroyed. He fled to, and raised an army at, Bukhárá, and advanced to Samr-ḳand. Bá'e-ḳará was unable to oppose him, concealed himself in the city, and subsequently escaped in disguise, and retired to the Hiṣár-i-Shádmán, the place of his birth,—the

\* Whether the counter striking of coins had any particular signification I am not certain, but it seems to me, that it had in this instance, and that it was done by Sultán Abú-Sa'id, Bahádúr Khán, to indicate that he had dispossessed the family of Sultán Sháh Rukh Mírzá of that monarch's empire.

† Mírzá Yád-gár Muḥammad was her great-grandson. The Pul-i-Khán that one used to hear so much about when the Russians seized upon the Afghan dependencies of Hirát, and were allowed to keep them, is said to have been erected at the expense of this Princess.

“Hissar” of our maps—where he was subsequently blinded and put to death by the Ḥākīm of that part, Amīr Khursan Shāh, after he had set him up as sovereign there, in Muḥarram, 905 H. (August, 1499. A. D.) “Husain Baikara” was, consequently, never “Governor of Khorāsān.”

Of course, this “Husain Baikara, Governor of Khorāsān” cannot be meant for Sultān Ḥusain Mīrzā, son of Maṣṣūr, son of Bā’e-karā, son of ‘Umar Shāikh, son of Amīr Tīmūr. Sultān Ḥusain Mīrzā was, perhaps, the most illustrious of the dynasty which ruled over Khurāsān, and during his reign Hirāt became the chief seat of learning and the arts.

This Prince, in the struggle for power, drove the Turk-māns out of Astar-ábād and its territory and assumed sovereignty over it, but his position was precarious on account of the superior power of Sultān Abū-Sa‘īd, Bahādur Khān, then ruling at Hirāt. When the latter fell into the hands of the Turk-māns, Sultān Ḥusain Mīrzā made a dash upon Hirāt, possessed himself of it, and again assumed the sovereignty. Mīrzā Yād-gār, Muḥammad, however, with his adherents, and aided by the Turk-māns, moved against him, and he had to fly in Ramazān, 874 H. (1470 A. D.). He soon recovered it again. Having made a forced march with a small following from Maimanah, he surprised Mīrzā Yād-gār, Muḥammad, asleep in a drunken state, in the Bāgh-i-Zāghān of Hirāt, in Ṣafar, 875 H. (August, 1470 A. D.), and put him to death. Sultān Ḥusain Mīrzā was now without a rival, and he reigned uninterruptedly from that time up to the year 911 H. (1506 A. D.), when the Uzbaks under their Sultān, Shāibānī Khān, invaded his territory. He was ill at the time; and on the 16th of Zī-Hijjah of that year (May) died at the halting place of Bābā Uldī of the well known district of Bādghais, for centuries the mustering place for armies on account of its luxuriant pasturage, and convenient proximity to Hirāt, but respecting the past history of which almost nothing was known to the authorities when the Russians lately seized upon the best parts of the province of Hirāt, and not much more now, but I shall throw some light upon it in the concluding portion of my “NOTES ON AFGHANISTÁN.”

#### “ṢAFAWÍ DYNASTY OF PERSIA.”

With regard to the coins said to be of the Ṣafawí Dynasty of Persia, that dynasty finally terminated with Shāh Husain in 1135 H. (1722-A. D.), for his son, Thamāsib, and the latter’s infant son, ‘Abbās, were but puppets in the hands of Nādir Kulī Beg, the Afshār Turk-mán, afterwards Nādir Shāh. The Ṣafawí dynasty having been subverted by the Ghalzī Afghāns, coins Nos. 207 and 208 are not of the Ṣafawí

dynasty, but of the Ghalzi dynasty, being coins of the two Ghalai Sultáns, Mahmúd and Ashraf. Neither can coins of Nádír Kulí Beg, the Asháf Turk-mán, and his sons, be styled of the Şafawí dynasty, any more than those of Karím Khán, the Zand, who, during the struggle for power, after the fall of Nádír Sháh, ruled over southern Persia, nor those of his rival, and subsequent true friend and adherent, the Afghán, Azád Khán, nor coins of the Káchár Turk-máns, who finally obtained the power, and who still retain it,\* and, therefore, Nos. 212, 213, and 214 are not those of the Şafawí dynasty, but of the Afshárs and Zand dynasties.

The coins Nos. 225, 229, 230 and 231, classed under "Afghánistán" along with those of Durrání sovereigns, but undetermined, cannot possibly be styled correctly as belonging to Afghánistán, nor to an Afghán dynasty. Hirát was the capital of Khurásán; and in 919 H. (1513 A. D.), the period mentioned thereon, there was no Afghán State, nor for some two centuries after that period. What Afghánistán means will be found in my "Notes" thereon, page 453. In the year in question, 919 H., Sháh Ismá'il, the Şafawí, was in possession of Hirát and Khurásán. He had, after the overthrow of Shaibání Khán, the Uzbek Sultán, near Marw, in 916 H. (1510-11 A. D.), annexed Hirát and Khurásán to his dominions. In 918 H. (1512-13 A. D.), while Zahír-ud-Din, Muhammad Bábar Mírzá, afterwards the founder of the Mughal dynasty in India, was fighting against the Uzbaks, and had been defeated by them, the Kazil-bágh troops, under the Şafawí leader, known as the Najm-i-Şaní,† at Bábar's urgent call, again advanced into Máwará-un-Nahr to his aid; but they were overthrown and put to flight by the Uzbaks, and the Şafawí general killed, on the 7th Ramazán, 918 H. On this the Uzbaks at once entered Khurásán again, and Muhammad Tímúr Khán, Shaibání's son, ruler of Samr-kand, assumed the sovereignty over Hirát and its dependencies; while his brother's son, 'Abd-ullah Khán, who held the Bukhárá territory, seized upon the Mashhad-i-Rizáwí and other parts of Khurásán. On this, Sháh Ismá'il, Şafawí,

\* When the present Sháh, who is a Káchár Turk-mán, visited England lately, one of the London newspapers of some repute assured its readers, that he was descended from the ancient fire-workshipping kings of the Medes and Persians, if not a direct descendant from Jamshed or Noshirwán the Just!

† I notice in several places in recent numbers of the "Journal" and "Proceedings," that 'Aziz-ud-Din, Muhammad, the Second 'Alam-gír, Bádsháh of the Dihlí empire, who ruled in the stormy period between 1754 and 1759, has been turned into "Zání." Although not a very bright genius, and very unfortunate, he was not an idiot: he was quite *compos mentis*. The word of his title after 'Alam-gír' is the 'Arabic word *gání*—'Alam-gír-i-Şaní, not "Zání," and of course signifies 'second—"The Second 'Alam-gír." See "Proceedings" for 1890, page 180.

once more hastened into Khurásán to drive out the Uzbaks, for which purpose he set out in the spring of 919 H. (1518 A. D.). On his approach the Uzbaks fled. He remained in Khurásán and Hirát after that for two or three months, and conferred the Government of Hirát and all Khurásán on Zanúl Beg, the Shámlú Amír; but, in 921 H. (1515 A. D.), he nominated his son, Thamási, then a mere child, to the government of Hirát and Khurásán, with Amír Khán, one of his great nobles, as his Atábak or Láláh (governor). The coin in question, No. 229, must, consequently, have been struck while Sháh Ismá'il was at Hirát, or soon after, by Zanúl Beg, the Shámlú, as governor of Khurásán.

On a future occasion I may offer some remarks on the Afrásiyábi Kháns of Máwará-un-Nahr and their coins.

*On a Symbolical Coin of the Wethuli dynasty of Arakan.—By W. THEOBALD*

In his article on the coins of Arakan, Pegu, and Burma, in the *Numismata Orientalia* Lieutenant-General Sir A. P. Phayre describes and figures nine coins which he refers to four kings, viz., Varma Chandra, Priti Chandra, Varma Vijaya, and Yari Kriya, the last represented by a single coin only, the initial character of which is not clear. I have lately become possessed of a second specimen of this coin, also unfortunately not quite clear as regards the first letter of the king's name. General Sir A. Cunningham points out, however, that the first and last letters, on both my coin and that figured by Sir A. P. Phayre are clearly different, and the name cannot therefore be Yari Kriya, which, moreover, is no name. He suggests as a possible reading the name 'Arikiya' but more perfect specimens must be discovered before this reading can be confidently accepted. The coin, however, clearly belongs to the 'recumbent bull' type of the symbolical coins of Arakan, and may be thus described:—

*Obverse.* A bull to the left, recumbent (though from the poor execution of some coins the animal might be considered as standing), within a circle having exteriorly a beaded margin. The king's name written straight across the coin, above the bull's back. †

*Reverse.* A central upright 'thyrsiform' object or pole, with an upright sickle-shaped support on either side; all three being supported by, or contained within, a concave horizontal base, but unconnected therewith. From the point of either 'sickle' shaped object, flows backwards and outwards, a curved fillet or plume-like band ornamented with seven globes, connected with the fillet by curved items imparting an elegant wavy or arborescent effect; while below the central ornament

are six dots or spheres, and above it, generally, the sun on the left and crescent moon on the right; the whole design being bounded by a circle, with beaded margin as on the obverse.

The central object on the reverse has been variously described. Lieutenant Latter, in describing these coins\* refers to this emblem as "the trident of Siva" and adds:—"On each side is a scroll, and beneath are certain round dots." To term the object a 'trident' however is quite inadmissible, as it is impossible to conceive a trident, which has no handle, or staff, and in none of the coins in question, is there the slightest indication of any central staff whatever. Moreover, in the best preserved coin, the so-called 'trident' and its constituent parts do not appear to be united to the curved horizontal bar, but to merely rest thereon, and not always even in contact therewith; and in no case is there any trace of a handle or prolongation of the central prong below: so that the notion of this object representing a trident must, I think, be rejected.

General Sir A. P. Phayre thus describes the symbol:—"Trident of Siva, with garlands pendent from the outer blades. Sun and moon above. Below nine dots."† The term 'garland', here applied to the lateral ornaments of the symbol in question, is even less appropriate than the term 'scroll' used by Latter, as 'garland' involves the idea of an annular object, which is certainly not intended here. Assuming that the sickle-shaped objects are intended for snakes, the 'scroll' which commences near the extremity of the head of each would represent a flowing recurved crest ornamented with five or seven dots, or jewels, each of which may stand for a separate head of a five-headed or polycephalic Naga.

That the symbol is not Sivite, or intended for the trisul of Siva, is the opinion of General Sir A. Cunningham, who remarks in a letter:—"The fact that the symbol was chosen by the Burmese King to place upon his coins ought to be sufficient evidence of its Bhuddhist origin."

As the term 'trisul' or 'trisuliform' would infer a connection with Sivite worship, it will be better to call it, the tripartite symbol, whether Bhuddhist or not, though it might have become ultimately associated with Sivite worship, or, not improbably, converted into the 'trisul' by a very slight process of development. All that was requisite thereto, was the addition of a staff below, and this merely involved the downward prolongation of the central upright stroke, which I have ventured to compare with the Greek 'thyrsos.' In like manner I am inclined to regard the side supporters as snakes or Nagas, without thereby intending to regard them as Sivite symbols, but rather as symbols adopted into both Buddhism and Sivaism from a cult older than either of those religions.

\* J. A. S. B., XV, 239.

† *Numismata Orientalia*, p. 28, Coins of Arakan, Pegu, and Burma.

We moderns have surprising difficulty in realizing the wealth of imagination which in early days was lavished on religious symbolism, and the Protean forms and shapes which the triform conception of deity generated in the early theopneustic mind. In occasional instances even now, where the religious sentiment is strong and united with an emotional or imaginative temperament, the mind seizes on any prominent object, as a symbol of the ruling idea. For example, I was once walking in Calcutta down 'Chowringhee' with a friend, when he suddenly grasped my arm, and pointing towards the tall Ochterlony Monument, asked me in an impassioned tone what that reminded me of. As I hesitated as to what I should answer, my friend went on—'Is not that an emblem of Christ, towering above mankind, as that pillar does above yonder plain?' In like manner any triform object, of whatever elements the symbol might be composed, would to the imaginative believer in a triform godhead, stand as an appropriate symbol of deity; whether the object was made up of a pair of snakes turned towards a central 'thyrsos' or rod, as in the 'caduceus'; or the trikelis, or wheel of three spokes; or its modern homologue, the Isle of Man symbol of three legs radiately arranged round a common centre. In the published coins, the dots below the tripartite symbols are five, seven, or nine in number, but on the coin in my possession they amount to six only.

This coin appears to be a variety of one figured by General Sir A. P. Phayre\* and referred to 'Yari Kriya', though no such king appears in the list, nor is that reading (in the opinion of General Sir A. Cunningham) supported by the coin itself. The bull on my coin has no necklace, and the snake supporters of the 'thyrsos' (using that phrase for want of a better) have seven-jewelled in place of five-jewelled crests. The diameter of my coin is 1.25 in., and the weight 105 grains.

*Rāma-tankis.*—By BĀRÚ M. M. CHAKRAVARTI, M. A., B. L., *Subordinate Executive Service of Bengal.*

(With one Plate)

Rāma-tankis (sometimes spelt 'Rama-tinkis') are gold medals which bear on the obverse figures purporting to be Rāma and Sītā seated on a throne and surrounded by attendants, the most prominent of whom is the monkey Hanumān. The figures on the reverse vary. These medals are always in gold, circular in area, with flat or concave sides. They are found in small numbers, chiefly in the Deccan. They are much prized by the Hindus, particularly by the Vaishnavas, and are daily

\* *Ibid.* Pl. II, Fig. 12.

*Obverse.*



*Reverse.*



1

*Obverse.*



*Reverse.*



2

*Obverse.*



*Reverse.*



3

*Obverse.*



*Reverse.*



4





worshipped with offerings of flowers and sandal paste. Their rarity and sanctity fetch for them fancy prices, and have often, it is said, led to forged specimens.

These medals, though rarely seen in the bazars, have not escaped the keen eyes of coin collectors. Stray pieces have been described by Mr. Marsden in his *Numismata Orientalia*, and by Sir W. Elliot in his *Coins of Southern India*. The Honorable J. Gibbs has dealt with them more fully in his article on "Râma-tankis" in the Journal of the Asiatic Society of Bengal. Some have been presented to the British Museum. Mr. Sewell notes one in the possession of a merchant named Vellâtura Ramnaya\* of the Cuddapa District.

I now proceed to describe the specimens in my possession. They are what are called Quarter Râma-tankis.

No.	Quantity of gold.	Diameter.	Thickness.	Weight.	Remarks.
1	Less fine than the Joypore but better than the Company's mohur.	1½" nearly.	⅜"	187 grs.	One similar to this weighs 190 grains.
2		1¼" inch.	Do.	189 grs.	
3		1⅜"	slightly more than ⅜"	189½ grs.	
4		1½" nearly.	⅜" Do.	193·7 grs.	Resembles No. 4.
5		1"	⅜"	264·5 grs.	

No. I. *Obverse*.—On a throne seated, Râma facing towards the left, and Sîtâ to his right. A bow and an arrow in Râma's hands. Below the throne, and towards left, is a person (Satrughna) holding an umbrella. Below the throne and towards the right, is a lion, or monkey (Hanumân), holding Râma's right foot; over it is a monkey, or man, dressed, and apparently reading a book.

Below the throne is a ghaṭa, or pitcher, with mango leaves over the mouth. On its right, impressions of two feet; on its left, two stars.

*Reverse*.—A platform of two lines with dots between and pendent scrolls. Over the platform are eight figures, facing towards left, and carrying fans and châmars. Over them are scrolls.

Below the platform are certain lines, which may be scrolls, or letters.

Figures less distinct than No. II, and rubbed with sandal paste. Work very rude.

No. II. *Obverse*.—On a throne seated, Râma with a bow in his left hand and an arrow in his right hand, and Sîtâ to the left. Both crowned. Further left, and below the throne, stands a figure (Satrughna)

\* Sewell's list of Antiquarian remains in the Madras Presidency, Vol. I, p. 132.

holding a chhatra, or umbrella, over the seated persons. A monkey to the right side and below the throne, touching the feet of Rāma. Another figure over the monkey (probably Jāmbuvān or Sugrīva), dressed and apparently reading a book. Below the throne is a ghaṭa, or pitcher, with mango leaves on the top, and having letters, or scrolls, on the right and left. Above the chhatra is a sun, with letters, or scrolls, on the right and left. Border dotted.

*Reverse*.—A platform with dots and scrolls pendent. Above the platform are eight figures, standing with face to the right, dressed, and carrying chāmars and fans. Over them are ten letters resembling Pāli. Over them are scrolls. Below the platform are a number of letters looking like Pāli. Dotted borders.

A finely struck medal, figures distinct.

No. III. *Obverse*.—A platform of two lines with dots between. Over the platform a throne, on which are seated Rāma and Sitā facing towards the right, Rāma holding a bow and an arrow. Below the throne, and towards the left, stand three figures, one holding an umbrella, another a fan, and another a chāmar. Below the throne, and towards the right, are Hanumān holding the feet of Rāma, and over him the bear, Jāmbuvān. Stars and moon at the top.

Below the platform are a number of lines apparently letters.

*Reverse*.—A platform of two lines with dots between. Over the platform are seven persons, standing dressed with face to the right, holding fans and chāmars in their right hands, and kamaṇḍalus in their left.

Below the platforms are some curved lines looking like letters.

The figures are distinct, but the workmanship is rude.

No. IV. *Obverse*.—A platform of two lines with dots between. Over the platform is a throne, on which are seated Rāma, and to his left Sitā facing towards the right side. Both crowned. Rāma carrying a bow in his left hand, and an arrow in his right hand, his right leg dangling below the throne. Further to the right, and below the throne, are Hanumān holding his foot, and Jāmbuvān standing. To the left of Sitā are three figures in a standing posture, one holding a chhatra, another a fan, and another a chāmar. On both sides of the umbrella top are dots representing stars.

Below the platform are undecipherable lines. The rim consists of dots between two circles.

*Reverse*.—A platform of two lines with dots between. Five figures standing on it dressed like *maṭṭh-ihāris*, facing towards the right, and carrying fans and chāmara. One letter to be seen on the right, and two letters on the left.

Below the platform are five or six letters. The rim has two circu-

lar lines, between which are seven letters, those towards the left being less distinct. Figures distinct, workmanship rude.

(*N. B.*—All the letters look like Telugu.)

No. V. Similar to No. IV, but shorter in diameter and thicker, and in weight heavier, by 70·8 grains.

On the obverse, beyond the circular lines enclosing letters, are dots.

The coin is duplicate of No. IV. It is worshipped daily by a local zemindar.

It will be seen that the specimens described are variants of one type. In all of them the obverses are nearly the same. In the reverses the prominent difference is in the number of figures, which are 8, 7, or 5. With the exception of No. II, the workmanship of the coins is rude, and, therefore, I once thought them to be forged. But that idea I have now given up. For a somewhat similar medal see Dr. Bidie's No. 2\*. For a specimen that is certainly forged see No. 113, Plate III, in Sir W. Elliot's *Coins of Southern India*†. He calls it "a modern Rām-tankā of no value." On the reverse he says is a "Nāgri legend not read." From the autotype copy, I find, on the reverse, a monkey (Hanumān) in the middle, with a Nāgari legend, which I read as श्रीराम च द सिवा + वादी कम च (च ?) न + पानेसकै. The weight—123·4 grains—is sufficient to mark it as forged. No Rāma-tanki of such a low weight is known.

The illustrations depict the *abhishheka* of Rāma and Sītā on their return to Ayodhya from Laṅkā.

ततः स प्रयती हञ्जो वसिष्ठो ब्राह्मणैः सह ।

रामं रत्नमये पीठे ससीतं सज्जवेमयत् ॥ ५८ ॥

... ..

रत्नैर्मानाविधेयैव विभितायां सुशोभनैः ।

मानारत्नमये पीठे कल्पयित्वा तथाविधि ॥ ६१ ॥

किरीटेन ततः पश्चात् वसिष्ठेन महात्मना ।

अलिग्भिर्भूषणैश्चैव समयोक्त राघवः ॥ ६० ॥

ह्वयं तस्य च जपाच्च मन्त्रैश्च पाशुरं शुभम् ।

श्वेतञ्च बालव्यजनं सुमीनो वानरेभ्यः ॥ ६८ ॥

अपरं चन्द्रकलाम् राक्षसेन्द्रो विभीषणः ।

मातां ज्येष्ठानीं वपुषा काचनी मत्पुष्कराम् ॥ ६९ ॥

रामावचे लङ्काकाये श्रीरामचन्द्रस्य राज्याभिषेक-

भङ्गाख्यानं नाम त्रिशदधिकशततमः सर्गः ॥

\* Journ. As. Soc. Beng., Vol. LIII, No. II, 1884, p. 212.

† Coins of S. India, p. 152E.

According to *Rāmāyana*, Śatrughna held the umbrella, Sugrīva the *chāmar*, and Vibhīshana, the king of *Rākshasas*, the wreath of one hundred lotuses.

I do not think the *Rāma-tankis* were ever issued as coins. No one at present uses them as such, and no tradition exists of their having been so used in the past. Besides, the numbers found are too small for use in a currency. They are to be considered as medals struck for some special purpose. For what purpose? The nature of illustrations indicates that they were struck at the time of the *Abhishekas*, or enthronements, of kings. This idea is supported by the name by which they are known in Orissa, *Rāmābhishekis*.—In short they may be considered as coronation medals, which were distributed among the Brahmins and others who assisted in the ceremony.

The dates of these medals have not yet been ascertained. Popularly they are ascribed to the time of Rāmchandra in the Tretā Yuga. Following the tradition of a math in S. India, Mr. Gibbs came to the conclusion that some of them might be 800 or 900 years old. Sir W. Elliott would bring them down to the reign of the Narasiṅha line of Vijayanagar (1488–1550?). In the absence of any reading of the inscriptions, it is difficult to date the medals. From the following general considerations I am inclined to think that the oldest cannot be earlier than the 14th century A. D. The *Rāmatankis* are S. Indian medals, and are chiefly known there. A glance at the list of S. Indian coins as given by Sir W. Elliott,\* and by Dr. Bidie,† will show that the earliest coins bore the marks of animals, plants, or geometrical figures. Next to them came coins bearing the figures of gods such as Śiva, Pārvatī, and Viṣṇu. So far as I see, these latter coins began with the Vijayanagar kings (Harihar began to reign in 1336 A. D.‡). Now *Rāmatankis* are Vaishnava medals, with Rāma and Sītā as the principal figures. They cannot therefore be put before the Vijayanagar kings, who were the first to introduce figures of gods and goddesses on the coins. Sir W. Elliott has found a coin of Īsvara with Rāma and Sītā seated, on the reverse. Īsvara belongs to the second line of Vijayanagar kings§. Thus this unique coin supports the above view.

As regards the *Rāmatankis* herein described, I imagine they are still more modern. The find spot is interesting. They have all been found in Puri, and it is remarkable that the numismatists who have collected elsewhere are not acquainted with this type. Dr. Bidie, who describes the

\*Coins of S. India, pp. 152–152H.

† Journ. As. Soc., Bengal Vol. LII No. I 1883 pp. 33–53.

‡ Sewall's sketch of S. Indian dynasties p. 103.

§ For the coin see "Coins of S. India" No. 108 p. 152E.; for Īsvara see Sewall p. 108.

single similar specimen in the Madras Museum, does not name the place where it was found. It might have been sent from Ganjam, or indeed from any Telugu speaking district. One of the present coins has on the obverse letters which look like Telugu. From these considerations I am inclined to infer that the kings who struck these medals ruled over Telingana, and probably Orissa. Could they have been the Orissa kings of the Suryavaṇṣa dynasty (1434–1538 ?), who were contemporaneous with the 2nd line of Vijayanagar kings, who were powerful enough to conquer the districts of Kistna and Godavery, and who appear from their inscriptions to have been Vaishnavas by religion ? I should not be surprised if further researches establish this view.

Since the above was written, I have come across another specimen. It has a diameter of  $1\frac{1}{8}$  inches and a thickness of  $\frac{1}{8}$  nearly. Its weight is 217 grains.

This weight is unique. The five specimens above described are either 3 or 4 times of 65 or 66 grains, the usual weight of a Máṛha.\* But this weight (217 grains) cannot be so classified.

The following is a detailed description of this new specimen.

*Obverse.*—This is divided into two parts by a line with dots under.

The upper part contains Ráma seated on a throne, and to his right Sítá, both facing towards the left. Ráma has in one hand a bow and in the other hand (raised) an arrow. Below, and to the left, are Hanumán holding Ráma's foot, and Jámbuván standing. Below, and to the right, is Bharat holding an umbrella. Under the throne is conch shell.

The lower part has some undecipherable indistinct figures.

*Reverse.*—Five human figures standing with chámars in their hands.

The outlines are very indistinct.

*Note on the topography of the river in the 16th century from Húglí to the Sea as represented in the Da Asia of De Barros.*—By C. R. WILSON, M. A.

(With one plate.)

The topography of the Húglí has been very ably discussed by Blochmann and Yule, and I do not propose in the present paper to re-open the general discussion. I wish to limit my observations to the course of the river as represented in the *Da Asia* of the Portuguese historian De Barros. The first decad of this work was originally printed in 1552, the second in 1553, the third in 1563, the fourth decad, as completed by Lavanha, appeared in 1613. It is in the fourth decad that we find the *De*:

\* For Máṛha see my essay on the Currency of Orissa, published in the *Journ. Ag. Soc. Beng.* Vol. LXI, No. I, p. 45.

*scripcao do Reino de Bengalla.* The map suggests two or three topographical questions which it will be well to keep distinct as far as possible. (1) What is the meaning of the map as it stands? (2) How far is it the original work of De Barros? (3) How far can it be trusted as accurate? I shall try to deal with these questions so far as they are concerned with the course of the river from Húglí to the sea.

I. The map does not contain the name "Húglí" at all. The river is called the Ganges; and, instead of the town Húglí, we have Sâtgáon standing on the Sarasvatí, close to the junction of that river with the Ganges and the Jamuná. Below Sâtgáon come Agarpur, Xore (which Blochmann identifies as Dakshinshor), and Baránagar. Then comes the town of Betor. It is here that I take up the question of the interpretation of the map. Blochmann\* says: "Belor has not yet been identified, unless it is intended for the insignificant village of Belur, opposite to Chitpur, with which it agrees in position." It appears that Blochmann read Belor instead of Betor, although the latter is quite clear in the map: hence perhaps the difficulty, for Betor is mentioned several times by writers in the 16th century, and was certainly not an insignificant village. The Bengali poets, Mukundaráma Chakravartí, and Mádhava Achárya, each wrote a Lay of Chaṇḍí, and they both speak of Betor† It was a sanctuary of the goddess Chaṇḍí, and also a good riverside market to stop at to buy provisions. Cæsar Frederick thus describes the place. "A good tide's rowing before you come to Satagan you shall have a place which is called Buttor, and from thence upwards the ships do not go because that upwards the river is very shallow, and

\* *Geographical and Historical Notes on the Burdwan and Presidency Divisions*, at the end of *Hunter's Statistical Account of the 24 Parganás*.

† For instance in the ordinary printed editions of the Chaṇḍí Maṅgal we read:—

बराय बलिहल तरो तिजेक ना रय ।  
 चितपुर सालिखा रङ्गादया बाय ॥  
 बलिकाना रङ्गादल देबियार बाळा ।  
 बेतङ्गेते उतरिल अवसान देळा ॥  
 बेतार बलिका पूजा कैल सावधाने ।  
 बमल पानचामा साष्ट रङ्गादल बाने ॥  
 बाचिने रङ्गादया बाय बिजडिर पय ।  
 राजबंस किनिया कदल पारावत ॥

Similarly Mádhava Achárya says:—

रैवरे बाकिधा साष्टु बले बाचवा ।  
 बेतासेवे उतरिल साष्टुर सनना ॥





I regard the map as fairly accurate for the course of the river from Beter to the sea. Mr. Blochmann doubted the very existence of Pacuculij, Pisacoly, and Pisolta; but I have found Pichuldoho in the very place indicated by De Barros and have also been able to account for Pacuculij and Pisacoly. Nor is there any reason to distrust the way in which the map arranges the tributary streams. Colonel Gastrell\* has argued that the principal outfall of the Dámodar, even as late as 1745, was the Jan Perdo river, which he identifies with the Káná Dámodar, one mile north of Ulubáriá, but which Sir Henry Yule identifies with the present Ulubáriá Khál; and this conjecture is in complete harmony with De Barros' map, for it represents the Dámodar as entering the Ganges (Húglí) by 3 outfalls at a point somewhere about Ulubáriá. I am not quite so sure about the accuracy of the map as regards the outfall of the river Ganga or Rúpnaráyan. To-day the Húglí on meeting the Rúpnaráyan is deflected sharply to the east, and after describing a large semicircle returns once again to its former longitude and flows due south past Ságar. In De Barros' map there is no such semicircular deflection, the river empties itself directly into the sea. Instead of the tract of land which now extends between the mouths of the Rúpnaráyan and the Haldí and forms the police circle by Sutáhátá in the Tamluk subdivision, we have a small delta enclosed between the two arms of the Ganga. If this be accepted as a true picture of the state of things in the 16th century, we must suppose that the eastern portion of Tamluk (i. e., the police circle of Sutáhátá) has been thrown up since then by the deposits of the Rúpnaráyan, and that hence has been formed the Diamond Harbour, the Diamond Sand being merely the last and least result of this very process.

Having thus reached the Diamond Sand, I am tempted to add one more remark, by way of conclusion, which has to do with the topography of the 17th and not the 16th century. Sir Henry Yule says that "the sand probably got its name from some ship," and notes that "a ship in the company's employ called the *Diamond* is pretty often mentioned circa. 1620-1640." I have found some more definite evidence on this point. From a journal kept by Job Charnock and his Council, during the time when the English were quarrelling with the Nawab of Bengal, we learn that in 1688 Captain Herron's ship was called the *Diamond*. Under the date 14th November 1688 the diary notes:—"In the evening anchored at Sumberroo treest, where Captain Walthrop came on board of us to know when we intended to go over the Braces; which was resolved of,

\* Hunter's *Statistical Account of Bengal*, Vol. III, pp. 258-261.

† Kitesal.

to be with the morning light: he informed us how, on the 12th current, at night, he left the ship *Diamond* ashore, with her head at Bufflo point,\* but in little danger, being taken care for by Captain Heath, and supposeth she got off with the flood then coming in." After this Charnock and the Council set sail and reached Ballasore. And on the 18th "the ship *Recovery* arrived in the Road, from the Braces, bringing news of the ship *Diamond's* being in safety." I think it likely that the Diamond Sand got its name from this incident, the more so as, according to Sir H. Yule, Herron, the Captain of the *Diamond*, was the author not only of the earliest instructions printed in detail for the navigation of the river Húgli, "but probably also of the earliest chart of it that has any claim to quasi-scientific character."

*Rajah Káns.*—By H. BEVERIDGE, C. S.

The publication by our Society of the *Riyáz-nussalátn* is a valuable contribution to the history of Bengal. It is to be hoped that it will lead to the discovery and publication of the sources of that work. For though Ghulam Husain's book was the foundation of Stewart's History of Bengal, he is too recent a writer for his statements to be of authority, except when he is quoting from a *risalah*, or little book, by some unknown author, or is giving the local traditions of Dinajpur and Maldah. It is a pity that so little is known about Ghulam Husain. He was a native of Zaidpur in Oudh, and was Dák Munshi under Mr. George Udny, the Commercial Resident at Maldah. He died there, and his tomb is still shown.

We owe to Ghulam Husain the fullest account that we possess of the Hindu whom he and other Muhammadan writers are supposed to designate by the name of Rajah Káns. I hope to show later on that his real name was Ganes, and that the early Muhamedan historians probably wrote his name as Gáns or Ganes. Ghulam Husain represents Rajah Káns as a cruel and bigoted tyrant. He describes him just as a worshipper of Krishna would describe Rajah Kamsa of Mathura, and no doubt allowance must be made in both cases for religious prejudices. But, cruel tyrant or not, Rajah Káns is the most interesting figure among the kings of Bengal. We feel that this obscure Hindu, who rose to supreme power in Bengal, and who for a time broke the bonds of Islam, must have been a man of vigour and capacity. He reminds us of the unfortunate Hemu who opposed Humáyún. Ghiassuddin, one of

\* At the north edge of the Diamond Sand.

Rajah Káns' predecessors, was a jocund and able prince, and the story about the Kazi's calling him to justice for having by misadventure shot the widow's son is worthy of Herodotus. But the only other king of Bengal who can compare in romantic interest with Rajah Káns is Husain Shah. He is known in history as Alauddin Abul Mozaffar Husain Shah, but the people of the *Rarh* in Murshidabad call him the *Rákhál Bádsháh*, or Shepherd King, from a tradition that he was originally a herdsman in the house of a brahmin at Chandpur, or Chandpara, near Mirzapur, in the Subdivision of Jangipur.\*

In Buchanan's account of Dinajpur† Rajah Káns is called Gones. He says that Ghyassuddin was succeeded by his son Saifuddin, and he by his slave Shihabuddin, and that then "Gones, a Hindu and Hakim of Dynwaj, (perhaps a petty Hindu chief of Dinajpur) seized the government." It does not seem certain that this Dynwaj is identical with the town of Dinajpur. It may have some connection with the Dhinaj Rai mentioned in Stewart, page 72, as a chief of Sonargaon. But the Riyáz, page 78, calls him Bhoj Rai.

Mr. Westmacott‡ was apparently the first to point out the identity of Káns and Gones. Mr. Blochmann§ doubted the identity, but I presume that his doubt was only as to the proper spelling of the name; for it is impossible to doubt, that, whatever be the true name, the person described by Buchanan as Gones is the Káns of Firishá and the Riyáz. Mr. Blochmann remarks that Gonesh is a common name, and that Muhammadans must have been acquainted with it. "But all MSS. spell the Rajah's name كہانس Káns, not گنیش Ganes." The reply to this is that *g* and *k* are often written alike in MSS. There is no *g* in Arabic, and in Meninski's Dictionary we find *g* and *k* treated as one letter. In his remarks on the letter *K* he says that it is also written with three dots and called *gef*, "*sed raro in libris invenies expressa illa puncta, unde et hic ea passim omitto.*" Another way of distinguishing between *g* and *k* is by writing or printing the former with a second slanting line, thus *ك*, but this is very often not done in

\* J. A. S. B. XLII, 227 note. The story is that when Husain Shah became king he rewarded his old master by giving him a zamindari at the quit-rent of one ana. Hence the place is called Ekana Chandpara to this day. Another tradition about Husain Shah is that he made a road from Deoghar to Jagannath. This he did to propitiate the god who had threatened him with death for having entered his temple. The road runs from north to south through the *Rarh* or western half of Murshidabad and is still in use. There are many tanks along side of it which Husain Shah is said to have excavated for the benefit of travellers.

† *Eastern India*, II, 618.

‡ *Calcutta Review*, LV, 208.

§ J. A. S. B. XLIV, 286-87.

MSS. The old name for Rajmahal is written indifferently Akmahal and Agmahal, and in the Qandahar inscription published by M. Darmesteter in the *Journal Asiatique* for 1890, page 205, we find that Ghora Ghát, Gaur, and Bangalah, were engraved on the rock as Kora Kat, Kaur, and Bankalah. M. Darmesteter remarks on this peculiarity in a note at page 219. It seems therefore quite possible that the name in the MSS. was written Gáns, or Gánes. This is very nearly Ganesh, or Ganesa. Sometimes the approximation is even closer, for at page 115 of the Asiatic Society's edition of the *Riyáz*, we have, in a foot note, the various reading كنس Kóns, or Kans, *i. e.*, I submit, Ganes.\* Besides, it does not seem correct to say that all MSS. give Kans. At least one MS. must apparently have given the letter as a *g*, for Buchanan presumably got the name Gones from his Pandua manuscript.† The fact that the name Ganesh still lives in the memories of the people of Dinajpur is a strong argument in favour of the identification and of Ganesh being the real name.‡ If the name was Káns, and if Káns was a different man from Ganesh, we have the improbability that a Hindu chief of great celebrity has been forgotten by men of his own country and religion, and remembered only by Muhammadans. Then too it seems very unlikely that a Hindu should have borne the name of Káns in the beginning of the 15th century. On the other hand Ganesh is a very likely name, and we find that Ganesh was a good deal worshipped in Dinajpur, for Buchanan§ gives an engraving of a remarkable image of Ganesh, which had been originally at Bánnagar. I submit that the evidence is sufficiently strong to justify us in writing the name as Ganesh.

But, however that may be, it is clear, as I have already observed, that the Gones of Buchanan is the same person as the Káns of the *Riyáz*. The two accounts perfectly agree. Buchanan tells us that Gones put Shaikh Badar-al-Islam to death for not doing homage to him, and the *Riyáz*, page 111, tells us the same thing. Both tell us that the Rajah had a son called Jadu, who afterwards turned Muhammadan, and reigned as Jalalluddin, and both tell us of the interposition of Qutb Alam and the invasion of Ibrahim of Jaunpur. Indeed it is clear that either Buchanan's manuscript was simply the *Riyáz*, or some work which the author of the *Riyáz* has made use of. It is interesting to find that the *Riyáz* represents Qutb Alam as applying the title of Hakim to Rajah

\* Stewart, p. 93 spells the name Kanis. This seems nothing but Ganes. In the *Ain* I, 418 and 415, he is called Kánsi Bumi.

† See *Eastern India*, II, 616.

‡ I got this fact from Babu Hari Mohan Singh, Manager of the Dinajpur Raj.

§ *Eastern India*, II, 625.

Káns. Hakim was Gones' title, and Mr. Westmacott tells us that it is still in use among the ryots of Dinajpur when speaking of their zamindars.

The Riyáz calls Rajah Káns Zamindar of Bhaturiah. Mr. Blochmann\* says that he does not know if this name is an ancient one, and that it does not occur in the Aín. But there is good evidence of the antiquity of the name. Gladwin, in his Revenue Accounts published in 1790, at page 13, mentions Bhaturiah as giving its name to a *śr* of a particular weight, and Grant in the Fifth Report, page 347, tells us that Bhaturiah was an ancient division, and was the *jaghr* of Mir Jamla. In Jaffar Khan's settlement of 1722 or 1135 A. H., Bhaturiah was included in Chakla Ghora Ghát.† I am also inclined to think that the name does occur in the Aín. Grant tells us, page 338, that Bhaturiah belonged to Sarkár Bázuha, and in the Aín, page 404 of the Persian text, we find a Bahuriabazu, or Bahsuriabazu, entered as a large *mahal* in that Sarkár. It is very likely that two dots have been omitted in copying, and that the name should be Bhaturia. Bázu is an affix to all the estates in Sarkár Bázuha, as Mr. Blochmann has pointed out.‡ Mr. Blochmann has also pointed§ out that Bhaturia is the name given in Rennel's Bengal Atlas, Sheet No. 6, to a large tract east of Maldah. It included Nattore. In the same map we have the town Battorya marked, and this is probably Bhaturia. It lies near the Ganges, and about half way between Pábna and Rampur Bauliah.

Mr. Blochmann has hazarded the conjecture that the name Rajshaye is a reminiscence of Raja Káns. This, however, seems very doubtful. Rajshaye does not seem to be an old name. Apparently it does not occur in the Aín, for Grant places Rajshaye in Sarkár Audambar, or Tánda, and the name does not occur under that Sarkár in the Aín. Moreover Rajshaye proper was on the west of the Ganges, and is so marked in Rennel. It therefore was no part of Káns or Ganes's ancestral property. There is not even a *pargana* of the name of Rajshaye in the modern district of that name. The *pargana* Rajshaye, which probably gave the name to Rani Bhowáni's immense zamindari, is far away to the west of the Ganges and lies chiefly, if not entirely, in Birbhum. Rajshaye is probably a compound word of the same class as Rajmahal. It is possible even that the last syllable may not be connected with *Sháh*, but may be the Arabic *shai*, i. e., property. The Rajah referred to in it is not improbably Rajah Man Singh. There is a large *pargana* in the same neighbourhood, of which the Rajshaye *pargana* is, I believe, a dependency, which goes by the name of Kúmar

\* J. A. S. B. XLII, 263.

† *Vide Fifth Report*, pp. 264 and 338.

‡ J. A. S. B. XLII, 216.

§ *ib.* p. 263.

Pratáp. This is an old name, and occurs in the Aín, and probably refers to Pratap Sing, the son of Bhagwas Das, and brother of Man Singh.\*

It is to be regretted that the information about Rajah Káns or Ganesh is so scanty. Perhaps a diligent inquiry in Dinajpur and Bogra might lead to further discoveries. Firishta represents him in a good light, and as half a Muhammadan. The Riyáz pictures him as a bigoted tyrant. Perhaps both accounts are partially correct. Probably his severity to Badar-al-Islam was the result of political rather than religious motives. Even the Riyáz tells us that he allowed his son to be made a Muhammadan, and that he himself would have become one but for the influence of his Rani. At page 618, Buchanan calls the son Godusen, but in his *Appendix*, page 28, he calls him Juddoo Sein. This is important, for it seems to show that Ganesa was connected with the old Sein kings of Bengal.†

I now proceed to discuss the chronology of Rajah Káns or Rajah Ganesh's reign. This is a very obscure matter. There can be no doubt that the dates given in the Riyáz are wrong, for they disagree with the evidence of coins, and also with the author's statements about Sultan Ibrahim of Jaunpur. There is one clear date, not on a coin, which, I think, throws light on the subject. This is the date of the

\* Blochmann's Aín, 447, and Stewart, 188.

† At one time I thought that Rajah Káns might be identified with the Karna Sein who ruled at Rángamáti in the Murshidabad district. Karna might easily be changed into Kán, if not into Káns; and Captain Layard, J. A. S. B. XXII, 282, was told forty years ago that Karna Sein was a famous Maharajah of Bengal who resided chiefly at Gaur. The story of the Riyáz about Rajah Káns' making golden cows might also agree with the name Gowkaran and the legend told to Captain Layard about that place. Gowkaran, is 3 or 4 miles from Rángamáti. The natives say that it is the place where Rajah Karna kept his cattle, and that Gobarhatti, between it and Rángamáti, is where the dunghill was. It is also curious that Buchanan, II, 682, heard of a "Gokarna Rajah" at Ghora Ghát in Dinajpur. Finally there is the fact that the name of the village near Rángamáti where the ruins of the Rajbari used to be, and where the moat is still pointed out, is Jadupur, which might point to Jadu *alias* Jalalluddin. It is quite possible that the legends about Rajah Karna Sein may have become mixed up, but I could not hear anything at Rángamáti about Rajah Káns or Rajah Ganesh. What I was told was that Karna Sein drowned himself in the Chauti Bhil, when attacked by the Mahomedans, and that he had a son named Brisha Ketu. It may be noted that there is a Ganeshpur north of Jiaganj in Murshidabad.

Mr. Westmacott informs me that Dr. Buchanan's MSS. are now in the Library of the Royal Asiatic Society in London. It might be worth while to examine them and to see if they say anything more about Rajah Ganesh than what Mr. Montgomery Martin published.

death of the famous saint Nur Qutb Alam. He is buried at Pandua, and the date of his decease is fixed by the chronogram, *Shams-ul Hidāyat*, as 851 A. H. or 1447 A. D.\* General Cunningham has also used this argument in volume XV of his *Archæological Reports*, page 175. If the inscription at page 83 of that volume refer to Nur Qutb Alam, he died even later than 851, viz., in 863. However 851 is enough for our purpose, and is in all probability the correct date.†

According to the *Riyāz*, the saint was of the same age as Sultan Ghyassuddin, and was his fellow-student under Shaikh Hamiduddin of Nagore.‡ And the *Riyāz* adds that Sultan Ghyassuddin revered the saint all his life. But this is inconsistent with the supposition that Ghyassuddin died in 799. Qutb Alam must have been very young then, and he had not succeeded his father Ala-ulhaq, who was also a distinguished saint, and who died in 800. Ghyassuddin according to one account reigned 16 years, and before that he had been for many years in rebellion against his father. He cannot then have been young when he died, and it is extremely unlikely that his fellow-student survived him for more than fifty years.

According to the evidence of coins Ghyassuddin was reigning in 812, and, as the editor of the Catalogue of Muhammadan coins in the British Museum observes, there is no good reason for supposing that the coin was a posthumous issue. Further, we have the apparently indisputable evidence of the Chinese annals, quoted by General Cunningham, to the effect that Ghyassuddin did not die till 814, when he was succeeded by his son Saifuddin. It is true that there is the difficulty, not noticed by General Cunningham, that there are coins of Saifuddin Hamza dated 799.§ But it is easier to believe in contemporaneity than in posthumous issues, and we find that Ghyassuddin himself issued such coins in the lifetime of his father. It is to be remembered that Ghyassuddin appears to have lived latterly at Sonar-

\* J. A. S. B. XLII, 262.

† 851 is the date given by Mr. Blochmann, and he supports it by the chronogram, but it is curious that in the *Ain II*, 220, the date of Qutb Alam's death is given as 808. In *Ravenshaw's Gaur* p. 52 the date of Nur Qutb's death is given as 851, but at p. 50 it is stated that according to a book belonging to the endowment Nur Qutb died in 828 (1246). The same book also gives the date of his father's death as 786. It must be confessed that 828 is a more likely date for a contemporary of Ghyassuddin than 851. [Mr. Beveridge wrote this in April. Three months later, having gained further information, he was able to fix the date of Nur Qutb Alam's death as 818 A. H. Mr. Beveridge's reasons will be found in the note which immediately follows this article. Ed.]

‡ Mr. Blochmann says that this is in Jedhpur and not in Birbhum, l.c. 260n.

§ See B. M. Catalogue 25.

gaon for his tomb is there. This may have facilitated Saifuddin's usurpation, or may have been accompanied by a division of the kingdom. Saifuddin reigned three years and seven months according to the Riyáz, and his slave, or adopted son, Shihabuddin reigned three years and four months. Reckoning 814 as the year of Ghyassuddin's death, this brings us to 821. But this is too late, for Jalalluddin's coins go back to 818. There must therefore be some mistake about the length of the reigns of Saifuddin and Shihabuddin. There is also the seven years' reign of Rajah Káns to be accounted for, but I think we may well believe that part of it was contemporaneous with Shihabuddin's reign, and part with that of Jalalluddin. The Riyáz tells us that when Rajah Káns was pressed by Sultan Ibrahim, he resigned the throne, and that his son Jadu was proclaimed king under the style of Jalalluddin. But when the Rajah heard that Ibrahim was dead, he resumed his power. May not the coin of 818 refer to the time when Jalalluddin became Sultan in his father's lifetime? He was a boy of twelve then, according to the Riyáz, so that the real power would remain with the father.

The Riyáz mentions the tradition that Sultan Ibrahim died shortly after his retreat from Gaur. This must be incorrect, for Ibrahim reigned till 844. It is curious that the Jaunpur annals do not say anything about the expedition of Ibrahim to Bengal. They tell us that Khwaja Jahán and his son Mubarak levied tribute from Bengal, and this fact and their apparently sudden deaths would make the story of the Riyáz square better with their reigns than with that of Ibrahim. But it is not likely that a mistake of names was made, especially as Buchanan also has the name Ibrahim. He, however, does not identify him with Sultan Ibrahim Sharqi, and describes him as being the grandfather of Husain Shah, and as having been put to death by Jalalluddin. This must surely be all wrong.

Though Firishta does not say anything about Ibrahim Sharqi's attacking Rajah Káns, he describes him as having set out on an expedition against Delhi in 816, and as having returned to Jaunpur after making some marches.\* Perhaps this is the occasion referred to in the Riyáz. Firishta also tells the story about Shihabuddin Qazi's silver chair, so that there can be no doubt that the Ibrahim of the Riyáz is the Sultan of Jaunpur. Perhaps both Firishta and Ghulam Husain derived their information from the history of Bengal by Mahomed Qandahari, which unfortunately seems to be no longer in existence.

\* See also the Sharqi architecture of Jaunpur by Dr. Führer, p. 7. Ibrahim made another expedition in 1435 A. D. (839) *ibid* 8. The Riyáz gives it as a rumour that both Ibrahim and Shihabuddin died shortly after their interview with Nur-ud-din Alam. It is true that both died at about the same time, but this was long after Rajah Káns' time.



*Note on the date of Nur Qutb Alam's death.—By H. BEVERIDGE, C. S.*

I think that we have now got some more light on this vexed question. In my paper on Rajah Káns, I gave the date 851 A. H., which is that mentioned by Mr. Blochmann, and which therefore was probably correct. At the same time, I pointed out that it differed from the date (808) given in the *Aín*, and also from that mentioned in Ravenshaw's *Gaur* (828). I am now convinced that 851 is wrong. It is much too late for one who was a contemporary and fellow-student of Ghiassuddin. I find too that the chronogram *Shams-ul-Hidáyat* referred to by Mr. Blochmann, which gives 851, is apparently a recent invention. As has been pointed out to me by Maulavi Fazl Rubbi, the Divan of the Nawab Bahadur of Murshidabad, Mufti Ghulam Sarwar of Lahore claims,\* to be the author of the chronogram. His book, the "*Khazínatu-l-Aṣfiyá*" was only published in 1864. It is true he refers to an earlier author Shaikh Hisamuddin of Manikpur, writer of the *Rafik-ul-Arfín*, as giving the date 851, but I have not been able to see that work, and so I do not know what its age and authority are. Ghulam Sarwar says nothing about the date given by Abul Fazl.

The best authority on the point should be the book in possession of the Khadim, or Guardian of the Shrine,† at Pandua. The existence of such a book is mentioned in Ravenshaw's *Gaur*, but when I wrote for a copy to Mr. Batabyal, the Magistrate of Maldah, he informed me that the book was reported to have been stolen. However, he has sent me an extract from the late Maulvi Elahi Baksh's history, which supplies the necessary information. Maulvi Elahi Baksh tells us that the inscription "*Kitaba*," in the possession of the Khadim, gives 7 Zilqada 818 as the date, and نور بنور شد, *Nur bnur shud*, as the chronogram. This may be interpreted "*Light went to Light*", or "*Light was with Light*", and is neater and more poetical than the *Shams-ul-Hidáyat* of Ghulam Sarwar. It gives the figures 818 (1115-16).

I submit that this date should be accepted as correct; first because it is that preserved at the shrine; secondly because it is more detailed than the others, as it gives the date of the month as well; and thirdly because it nearly agrees with Abul Fazl's date of 808, and corresponds with history much better than 851. Jalalluddin, the son of Rajah Káns, or Ganes, apparently began to reign about 818, and the Riyáz tells us that when he ascended the throne, he sent for Shaikh Zahid, the grandson of Nur Qutb, from Sonargaon, and was henceforth guided by his advice. This implies that Nur Qutb was then dead, or very old, and at all events a man who was a grandfather in 818 is not likely to have lived till 851.

\* See his book, page 353.

† It is called the *Chhai Hazari* endowment as consisting of 6,000 *bighas*.

*A Vocabulary of the Korwa language ;—collected by*

W. CROOKE, B. A., C. S.

The following vocabulary of the language spoken by the Korwas, of whom there are a few families in the jungles of the southern part of Mirzapur, may be of interest in connection with Mr. Driver's paper in the 2nd number of the Society's Journal, Part I, for 1891. I have compared the list casually with Mr. Hislop's vocabulary of what he calls the Kuri and Muâsi dialect, and some words are certainly identical: but I leave the analysis of the language to some one skilled in the Gondi and Kolarian dialects. The glossary was taken down carefully from a Korwa, who could speak Hindi intelligibly as well as his own language :—

Mother,	<i>ingâ.</i>	
Father,	<i>apâ.</i>	
Son,	<i>hopînu.</i>	
Daughter,	<i>kori hopînu.</i>	
Woman,	<i>ereât.</i>	
Mother-in-law,	<i>henhartu.</i>	
Father-in-law,	<i>honhartu.</i>	
Wife's brother,	<i>sarâng.</i>	
Paternal uncle,	<i>kâkâ,</i>	(Hindi).
Paternal aunt,	<i>kâkî,</i>	(do.)
Married woman,	<i>byâh kî wabâ.</i>	
Paternal grandfather,	<i>dâdâ,</i>	(do.)
Maternal uncle,	<i>mâmâ,</i>	(do.)
Maternal aunt,	<i>mâmî,</i>	(do.)
Boiled rice,	<i>leñî.</i>	
Salt,	<i>bulung.</i>	
Paddy,	<i>horu.</i>	
Husked rice,	<i>kudî.</i>	
Wheat flour,	<i>kaniku,</i>	(Skt. <i>kañika</i> ).
Wheat,	<i>rakti,</i>	(Skt. <i>rakta</i> = red).
Gram,	<i>buñu,</i>	(Hind. <i>bunf</i> ).
Fire,	<i>sangel,</i>	( <i>singal</i> , Kuri).
Water,	<i>dâ,</i>	( <i>da</i> , Kuri).
Clothes,	<i>chirâ,</i>	(Skt. <i>chîra</i> ).
A cot,	<i>purkum.</i>	
House,	<i>oru,</i>	( <i>ura</i> , Kuri).
Thatch,	<i>saramtu.</i>	
Door,	<i>duârtu,</i>	(Skt. <i>dvâra</i> ).

Head,	<i>bhā.</i>
Ear,	<i>lutur</i> , (as in Kuri).
Eye,	<i>nain</i> , (Skt. <i>nayana</i> ).
Forehead,	<i>saṁāṅtu</i> , (? Hind. <i>śāmnā</i> = in front).
Nose,	<i>mūt</i> , ( <i>mā</i> , Kuri).
Cheek,	<i>johātu</i> , ( <i>joka</i> , Kuri).
Beard or moustache,	<i>ḍarhīt</i> , (Hind. <i>ḍārhī</i> ).
Tooth,	<i>tarīn</i> .
Mouth,	<i>āham</i> .
Tongue,	<i>alangtu</i> .
Lip,	<i>unuru</i> .
Hair,	<i>ukutu</i> .
Hand,	<i>tī</i> .
Neck,	<i>hotutu</i> .
Shoulder,	<i>kandhim</i> , (Hind. <i>kandhā</i> ).
Upper arm,	<i>śūpumu</i> .
Wrist,	<i>lulūām</i> .
Palm of the hand,	<i>tarwāmu</i> .
Finger,	<i>angrimu</i> .
Breast,	<i>kurām</i> .
Thigh,	<i>bulām</i> , ( <i>bulu</i> , Kuri).
Shin,	<i>porkatām</i> .
Nail,	<i>nahiyām</i> , (Skt. <i>nakha</i> ).
Cow,	<i>ḍangrā</i> , (Hind. <i>dāngar</i> = horned cattle)
Ox,	<i>bail</i> , (Hindi).
Buffalo,	<i>bhains</i> , (do.)
Female goat,	<i>merom</i> .
He goat,	<i>bakrā</i> , (do.)
Oil,	<i>sunām</i> , (as in Kuri).
<i>Ghī</i> ,	<i>ghī</i> , (Hindi).
Fowl,	<i>sunku</i> .
Tiger,	<i>kāl</i> , ( <i>kula</i> , Kuri).
Leopard,	<i>kurari</i> .
Jackal,	<i>buwāku</i> .
Hare,	<i>kulāhi</i> .
Bear,	<i>band</i> , ( <i>bānā</i> , Kuri).
Cat,	<i>pūśī</i> , (English <i>pussy</i> ).
<i>Sāmbhar</i> deer,	<i>sarmaku</i> .
Deer,	<i>silipku</i> .
Fish,	<i>hakūku</i> , ( <i>kakū</i> , Kuri).
Owl,	<i>happu</i> .
Crow,	<i>kāhuku</i> , (Skt. <i>kāka</i> ).

Kite,	<i>kuretu.</i>
Partridge,	<i>ārē.</i>
Quail,	<i>gondarē.</i>
Parrot,	<i>dūju.</i>
Tobacco,	<i>tamāk, (Hindi).</i>
Bamboo,	<i>māt. (māhat, Kuri).</i>
Pīpal tree,	<i>haseyā.</i>
Sāl tree,	<i>seri.</i>
Leaves of the Sāl,	<i>sarjām.</i>
The tribal dance or <i>karamā.</i>	<i>sarangmi.</i>
Earring,	<i>mundarā, (Hind. mundrī).</i>
Liquor,	<i>illi.</i>
Mahuā tree,	<i>matkām.</i>
Broom,	<i>junung,</i>
To run away,	<i>nayami.</i>
Come,	<i>dulang chalāma, (Hind. chalnd).</i>
To sit down,	<i>durangami.</i>
To stand up,	<i>rimāmi.</i>
To sleep on the ground,	<i>gendjimi.</i>
To wake,	<i>jagimi, (Hind. jāgnā).</i>
To laugh,	<i>lādami.</i>
To cry,	<i>yāmami.</i>
To eat,	<i>jomāmi.</i>
To drink water,	<i>dātuān.</i>
The spud for digging roots.	<i>rāmi, (Hind. rambhā).</i>
The sun,	<i>beyar.</i>
The moon,	<i>bāngo.</i>
The stars,	<i>epalku, (epal, Kuri).</i>
The sky,	<i>lemir.</i>
The ground,	<i>ūt.</i>
Thunder,	<i>palkālérá.</i>
Lightning,	<i>thankā.</i>
Weight,	<i>hemāā.</i>
To be angry,	<i>khāskena, (Hind. khā = a grin of rage)</i>
To quarrel,	<i>kalahena.</i>
To fondle,	<i>duduyemi.</i>
To abuse,	<i>egiriyadeyā.</i>
Bitter,	<i>hatiyā.</i>
Sweet,	<i>soriyā.</i>
Sour,	<i>jojiyā.</i>

Morning,	<i>jhātkarṭti.</i>
Midday,	<i>tiken kenā.</i>
Evening,	<i>ayup kenā.</i>
To ascend,	<i>rikāṭimi.</i>
Cold weather,	<i>leārtanā.</i>
Hot weather,	<i>ogartanā.</i>
To bathe,	<i>muān.</i>
Barren,	<i>menāhepunwā.</i>
To sleep,	<i>gitimi.</i>
To be bald,	<i>koānā uptido.</i>
To cook,	<i>badelangi sīnmā.</i>
The rice is cooking,	<i>letī dōva senidā.</i>
Naked,	<i>utārkenā.</i>

*The Korkus*—By W. H. P. DRIVER.

The Korkus are the most westerly of all the Kolarian tribes. They inhabit the Satpura, Mahadeo, and Maikul Hills in the Central Provinces, and a few are to be found in the valley of the Tapti.

They are found in various stages of civilisation, but they mostly cling to the hills and jungles, only visiting the nearest towns in the plains for marketing purposes.

They have retained their aboriginal language (a dialect of Kolarian), and also their aboriginal songs and dances, which plainly show their affinity to the Kols of Chota Nagpore.

They are in fact closely allied to the Korwas of Sirgooja, whose traditions connect them with the Mahadeo Hills.

The following short vocabulary shows the similarity in language:—

<i>English.</i>	<i>Korwa.</i>	<i>Korku.</i>	<i>English.</i>	<i>Korwa.</i>	<i>Korku.</i>
One	Mi	Mia	Bear	Bana	Bana
Two	Bar	Baria	Body	Horom	Komor
Three	Pei	Aphia	Dog	Seta	Sita
I	Ing	Ing	Earth	Has	Kasa
Thou	Am	Am	Eye	Met	Med
We	Aling	Alā	Fire	Sengel	Singal
No	Bai	Bang	Hair	Ub	Hub
This	Nai	Ini	Hand	Ti	Ti
What	Chila	Chaja	Hen	Sim	Sim
To eat	Jom	Jojom	Leaf	Sakam	Sakum
To sleep	Gette	Giti	Oil	Sunum	Sunum
Come	Hint	Hijo	Salt	Bulang	Bulang
Go	Senme	Sene	Snake	Bing	Bing
To-day	Tising	Ting	Star	Epil	Ifil
To-morrow	Gapa	Gaphang	Tiger	Kul	Kula

In appearance the Korkus vary according to the state of civilisation which they have reached. In the wilds they have little clothing and are very dark-skinned. Round about Chikalda in the Ellichpore district (where I saw them) the men are copper-coloured and the women much fairer. The men wear 'dhotis,' coats, and ornamental 'pugrees,' which at the Fagooa festival are hung with beads and bells, and they have country-made fancy waist cloths, the ornamental ends of which are allowed to hang down in the same style as the Uraons of Chota Nagpore. They also wear metal bracelets and large earrings.

The women wear the 'sari' tucked up like a divided skirt, according to the fashion of the country, but they hide the ugliness of this fashion by bringing the end round in front like an apron. They also cover the head, and wear the short jacket common in those parts. All this gives them a very non-Kolarian appearance, which, however, is counteracted by the number of earrings, necklaces of beads, armlets, bracelets, anklets, and rings, with which they deck their persons. The anklets are thin and loose, so that they make a loud jingling noise when they walk or dance.

The Korkus are a quiet peace-loving people; they do not know the use of the bow and arrow, and they live chiefly by cutting and selling bamboos, firewood, and other jungle produce.

They do a little in the way of cultivation wherever they can find a level piece of ground, but the "dhya" system has been put a stop to by Government, and the valuable timber trees are carefully preserved by the Forest Department.

Their staple food consists of "Kutki" (*Panicum*), which they boil and eat like rice; but they also grow "Kodo" (*Paspalum*), and sometimes a little coarse rice besides pumpkins and beans. They also feed on various jungle products, such as the flower of the 'Mhowa' (*Bassia latifolia*), the plum of the ebony-tree (*Diospyros melanoxylon*), the fruit of the wild mangoe, the berries of 'Chironji' (*Buchanania latifolia*), the 'Ber' (*Zizyphus Jujuba*), the seeds of the 'Sal' (*Shorea robusta*), the bean of the giant *Bauhinia* creeper, the seeds of the bamboo, a wild arrow-root (*Curcuma*), wild yams, and others.

They are very fond of all kinds of meat, and will eat buffalo, bison, pig, goat, and other animals, but not cows or monkeys, which Hindus have taught them to revere.

The Korkus divide themselves into two classes: the 'Roopa,' or greater; and the 'Bondoe,' or lesser. There is also a small tribe of alien origin named 'Nehals,'

who work as cowherds for the Korkus, and have successfully grafted themselves on them, adopting their language, customs, and beliefs. These Nehals are the remnants of a once numerous tribe that inhabited the Gawalgart hills, but were broken up and nearly exterminated by Sindia's soldiers. The Korkus, though otherwise mixing freely with the Nehals, will neither marry nor eat with them. These remarks of course only refer to the Korkus of Berar.

The Korkus are divided into 12½ "Gōts," or Septs, as follows:—

- 1 Busum ... thatch grass.
- 1 Jambu ... a wild edible fruit tree.
- 1 Bèthè ... do.
- 1 Siloo ... do.
- 1 Sowathi ... a small thorny creeper.
- 1 Chilathi ... a large thorny creeper.
- 1 Lota ... stalks of the Makui Jawari, &c.
- 1 Athoa ... a wooden ladle made from Bèthè wood.
- 1 Kollia ... ashes.
- 1 Kasda ... a ravine.
- 1 Dhikar ... descendants of a woman who gave birth while out fishing on the banks of a river.
- 1 Mawsi ... An ancient people who did not live in houses.
- ½ Hijra ... Hermaphrodites. There seem to be a number of these, and they live by begging.

A wealthy Korku may have several wives; but a woman may not have more than one husband. They do not

#### **Marriage and Marriage Customs.**

marry before the age of maturity. People of the same Gōt are not allowed to inter-marry, and children belong to the Gōt of the father. Widows and divorcees are allowed to re-marry, and the younger brother is supposed to take his defunct elder brother's wife. Divorce, or more properly separation, is very uncommon, and it is looked upon as very disgraceful for married people to separate under any circumstances.

If a wife separates from her husband, and returns to her father, the money, if any was paid for her, is returned to her husband. If a wife leaves her husband to live with another man, the bereaved husband brings pressure on her, through the elders of the village, or public opinion, and tries to get her to return; but no money compensation is ever sought or offered. Sometimes the aggrieved husband takes a bloody revenge, but this is not a common occurrence.

The price of a wife is Rs. 100 nominally; but, very few ever pay this price. More commonly the man serves his intended father-in-law for a term of years. The proper term is 12 years, but this is seldom or

never completed : for the young people, after once having lived together under the same roof, have the upper-hand of the stern parents, who are only too glad to compound the matter. Should the parents not acquiesce, the young people elope. It is, however, always considered disgraceful not to propitiate the parents, and public opinion, which is a very strong factor among these people, is always in favour of a proper ceremonious marriage.

Sundays and Fridays are considered propitious days for marriages. The ceremony is very like that of the Aborigines of Chota Nagpore. The marriage bower is erected in front of the bridegroom's house. The bridegroom goes to the bride's house, and carries her over to the marriage bower, when the usual ceremony of anointing, tying of cloths, and marching round together, is gone through. Then follows the usual wedding feast, which lasts late into the night.

For five days after a birth the mother is looked upon as unclean.

Then a fowl is sacrificed and a feast is given to relations and friends.

#### **Customs regarding children.**

Children are named without ceremony after they are 10 or 15 days' old. The parents are supposed to dream of some ancestor, after whom the child is to be named.

Girls are tattooed on the forehead, temples, arms, and the back of the hand, but not on the legs or feet.

The Korkus have no 'Dhamkuria' or bachelors' quarters.

They bury their dead about 4 or 5 feet below the surface of the

ground, and put stones over the graves to prevent animals from digging them up. A handy **Regarding the Dead.** with some rice is placed on the grave, but none of the dead man's belongings are put in his grave. The surviving relations wear the clothes and ornaments that belonged to the dead. Some time after a burial they erect a 'Munda' in honour of the dead. This is an upright post carved with figures of the sun, moon, and a horse. They offer sacrifices before these monuments, and dance the 'Siduli.'

The wife inherits her husband's property, and after her the male children.

The Korkus say they sometimes see the ghosts of their dead relations in their dreams, and whirlwinds are supposed to be the ghosts of the dead flying about, but they are not nearly so superstitious as the aborigines of Chota Nagpore.

They have different dances for the various seasons. During the

**Dances.** 'Fagooa' the men wear long grass stems in their puggies, and the women leaves in their hair. They dance the 'Tewar' at the 'Pola' or cattle festival. At the



**Dashera** the men dance the **Kombakulapa**, a step which reminds one of the Scotch Hoolachan.

The men have a great variety of steps in their dances. They stand erect, sway about, and hop more than the women. The women usually bend forward. They sway about their arms as well as their bodies, and sometimes link their hands. In all this they resemble the Kols of Chota Nagpore, but a distinctive feature of the Korku women's dancing is the stamping of the feet, their anklets jingling in time with the music.

Their musical instruments are chiefly wooden drums and bamboo flutes. The men play on the drums, sometimes sitting, and sometimes whilst dancing.

Their tunes have a distinct resemblance to those of the Chota Nagpuris, but they have a peculiar custom of finishing their songs with a kind of 'Yodel' with the back of the hand to the mouth, and then screaming like jackals.

The Korkus have their own priests, or 'Bhumkas', who offer sacrifices for them at certain stated times. Their office is hereditary.

#### Religion.

They worship the following the gods or demons:—

"Gomoi," or the sun, who receives a sacrifice of a goat once a year at the Dashera; Kala Bhairam, the most dreadful of the demons, who receives a goat; Bag Deo, Khara Deo, Chumria Deo, Daora Deo, and Dular Deo, who each receive a goat; Bhal Deo, who receives a cock and an egg; Hanuman Deo, and Mahabir Deo, who each receive flour, sugar, cocoanuts, and the like.

These demons inhabit high trees, hills, and streams. The Akhari Deota lives at the village Akhara.

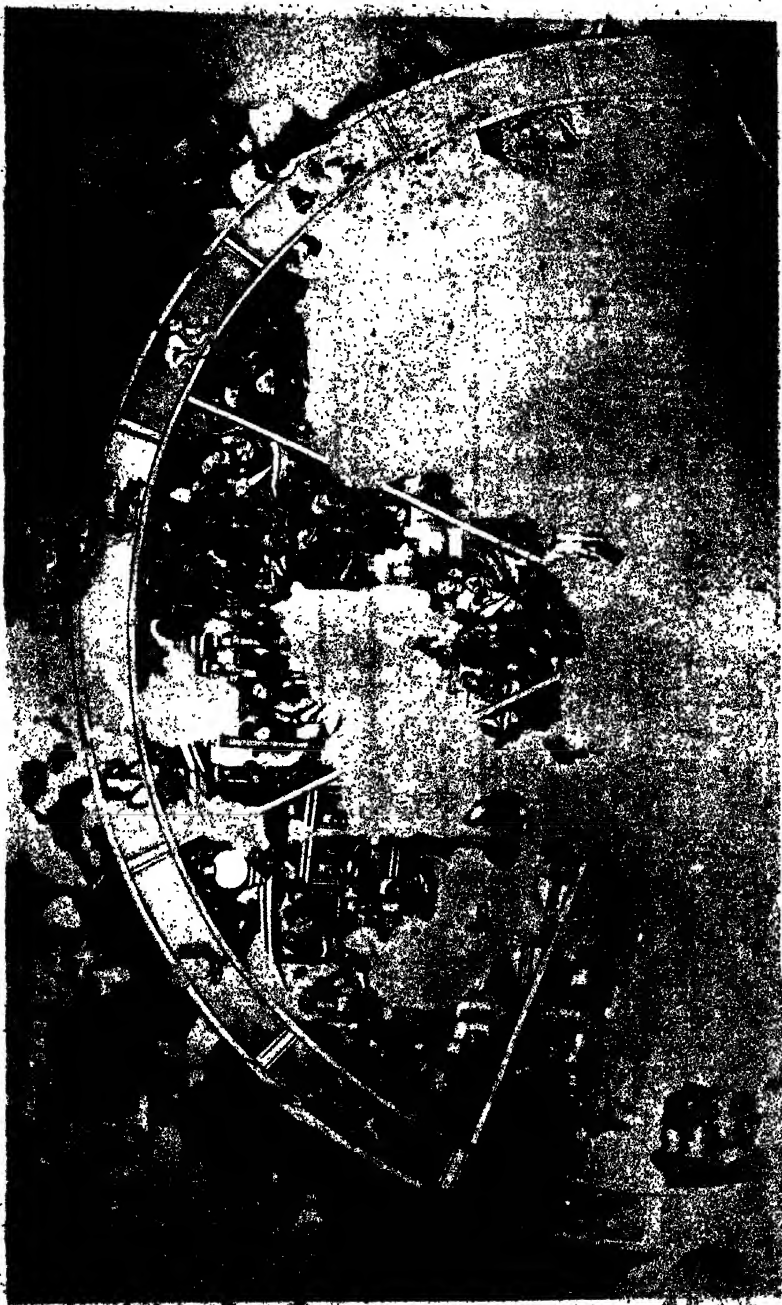
The following are the names of their festivals:—

Dashera, Pola, Dewali, Sewrat, Fagoona, Chait-puja, Bhawè, and Akhari.

In cases of individual sickness the head of the house offers a sacrifice to the offended demon.

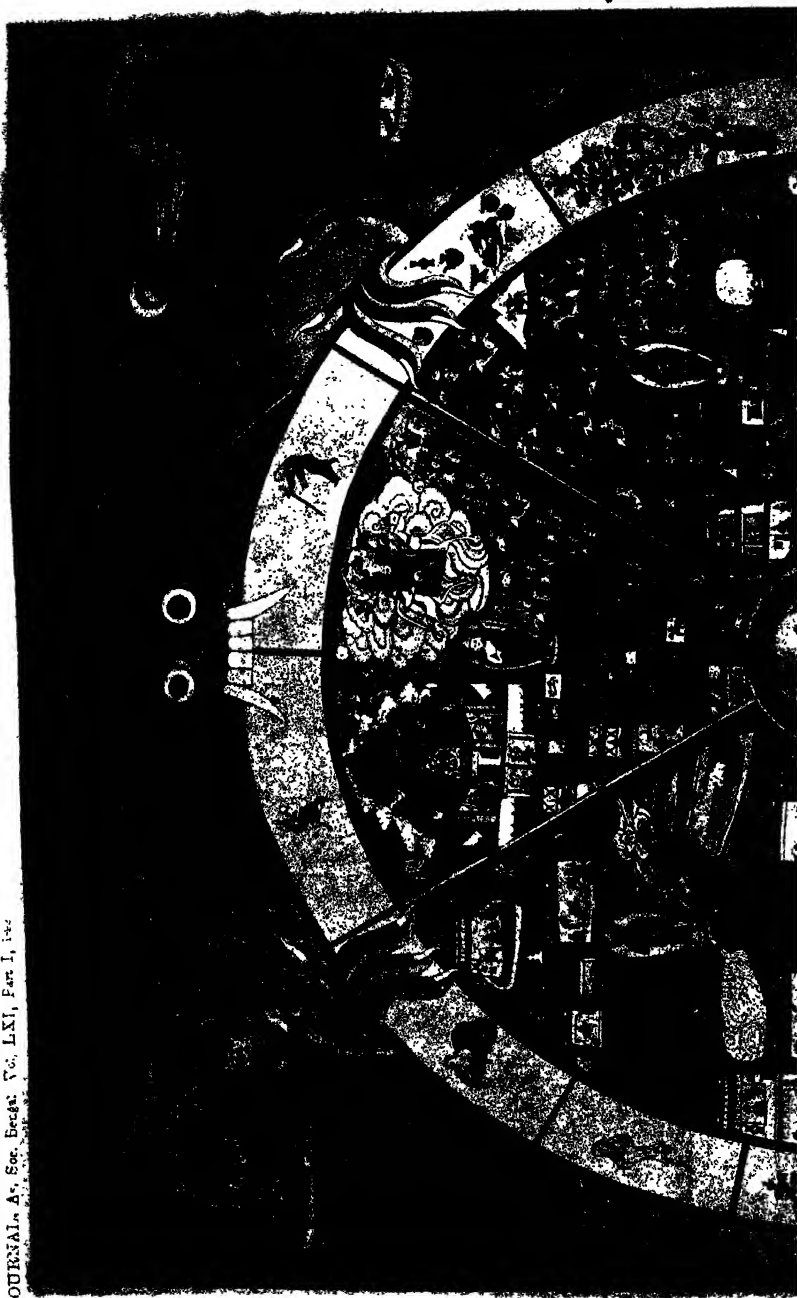
The 'Churil', or ghost of a pregnant woman, is driven out of the party possessed by blowing, and by burning chillies down the throat.

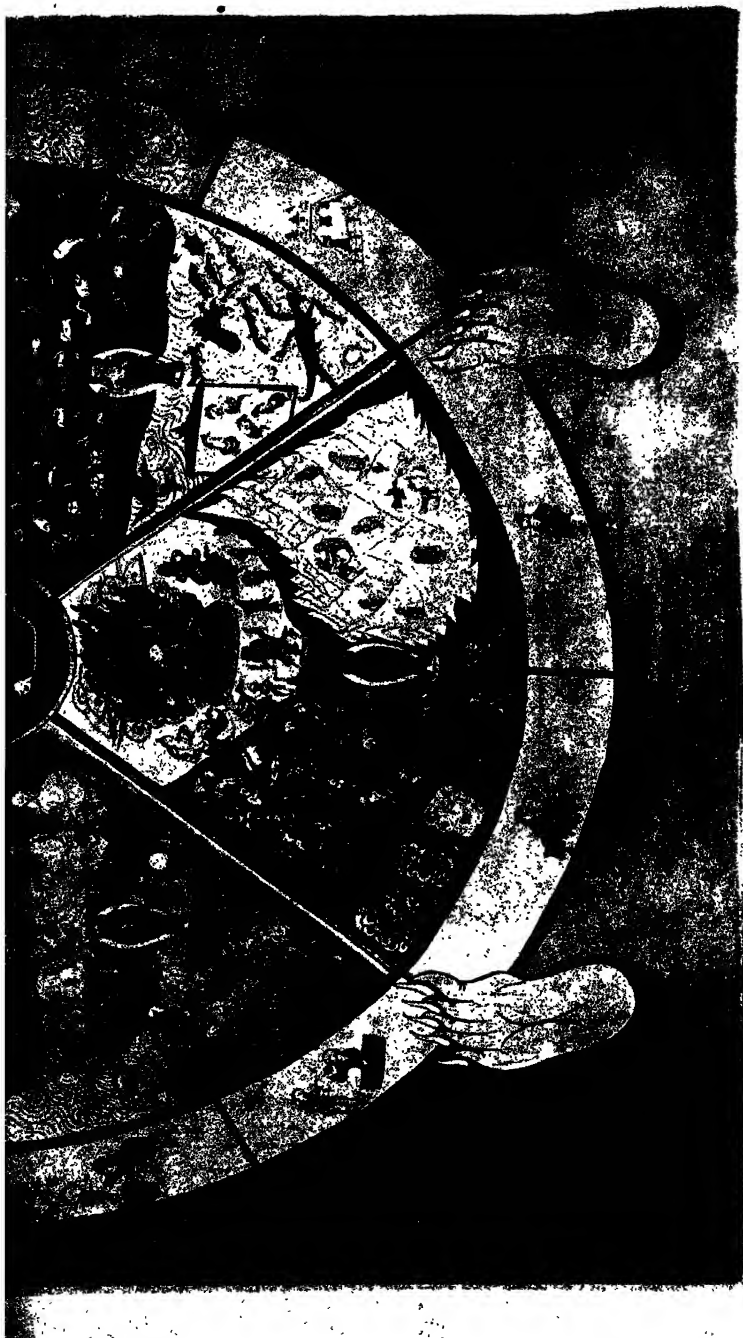
They do not believe much in wizards and witches, and they have no superstition about wearing the hair matted (Jatta) as in Chota Nagpur.











Calcutta Phototype Co.

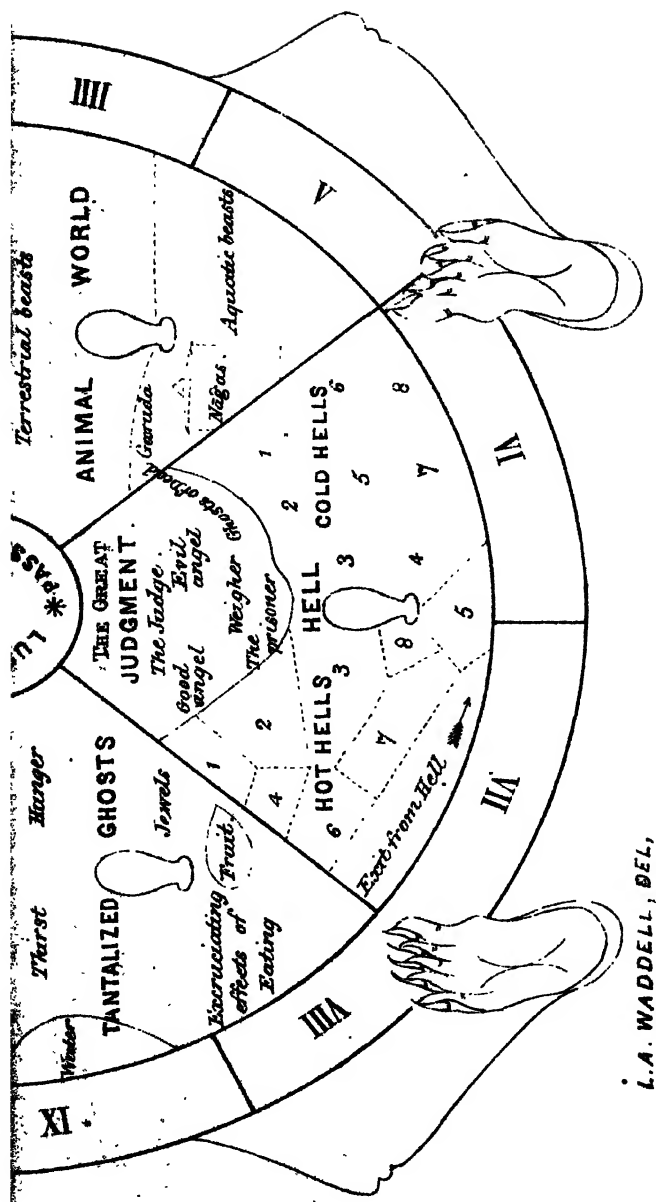
# THE BUDDHIST WHEEL OF LIFE











The Roman numerals indicate the Voluntas. The interior Compartments are numbered as in the text.



*The Buddhist Pictorial Wheel of Life.*—By L. A. WADDELL, M. B.

(With three plates).

One of the most striking of the many frescoes which adorn the interiors of lamaic temples is the Srid-pa-i Khor-lô\* (in Sanskrit *Bhavarachakra*) or 'Cycle of Existence,' a symbolie and realistic picture of the most leading law of Buddhism—Metempsychosis—the secret of Buddha having consisted in the means he devised for escaping from this ceaseless round of re-births and its attendant suffering.

But although this picture of 'The Wheel of Life' is so interesting in itself as an epitome of Buddhist principles, and, perhaps, one of the purest relics of Indian Buddhism that the lamas have preserved to us; and extremely valuable as portraying in concrete and traditional form several of the abstract metaphysical conceptions of the Indian Buddhist philosophers, that are only known to the western world by their ambiguous† Sanskrit and Pali terms and Tibetan equivalents, as found in the old Buddhist Scriptures, it is remarkable that not even the most cursory description of it has yet been published. Georgi in his *Alphabetum Tibetanum* appears‡ to have given a rough sketch of a rather confused copy of this picture, and his wood-cut has been in part reproduced by Foucaux,§ but no description of its details seems to have been attempted.

Owing, doubtless, to its execution in perishable painted form and not as a sculpture, I can find no trace of its hitherto undetected presence at modern existence in India except among the Ajanta. cave-paintings of Ajanta. The painting at the left end of the verandah of Cave XVII, the so-called 'Zodiac' of Indian Archæologists, of which there is in the Society's collection the fine photograph here shown, *vide* Plate VII, is a fragment of a Buddhist Pictorial Cycle of Existence. And I am glad to be able, by means of lamaic sources of information, to interpret its hitherto unknown details and restore its blanks caused by the ravages of time.||

\* Srid-pa-i khor-loi phyag-rgya: སྤེན་པའི་ཁོ་ལོ་ཕྱག་རྒྱུ་ཤི། (In Skt. *Bhavarachakramudra*).

† KOPPEN gives (*Die Religion des Buddha* I, 604) for one of these terms, *viz.*, *Sasvātra*, which is pictorially symbolized in this fresco, a long list of the different renderings which have been attempted, each with widely different sense. And most of the other *Niddna* terms are equally vague.

‡ I have been unable to consult GEORGI's work.

§ *Le Lalita Vistara* traduit du Sanskrit par PH. ED. FOUCAUX, Paris. 1884, p. 290, (forming Tome sixième *Annales du Musée Guimet*).

|| I have no doubt but that careful search at Ajanta, Ellora and other Buddhist caves in India would discover more of these pictorial cycles.

There are three forms of this pictorial wheel current in Tibet, viz.,

**Its forms.**

(1st) the complete form showing all of the 5 or 6 regions of re-birth; (2nd) the form devoted solely to the human and animal form of existence, and (3rd) the variety devoted to existence in the various hells. The 1st is by far the most common in Tibet, and is here exhibited, *vide* Plate VIII. The 2nd form is that which is depicted in the Ajaṇṭa Cave. All agree in being constructed in the form of a disc held in the teeth and clutches of a monster; and displaying in compartments around the margin of the disc, in symbolic form, the twelve recognized Causes of Re-birth—the *Nidāna*—and usually in the centre of the disc the three Original Sins.

The avowed object of this picture is to present the causes of re-birth

**Its objects.**

in so vivid a form that they can be readily perceived and overcome; while the realistic pictures of the evils of existence in its varied forms and the tortures of the damned are intended to intimidate evil-doers. The value of this picture for teaching purposes is fully utilized by the Lamas. It is placed in a conspicuous position, usually in the vestibule,\* and is occasionally, as at Samye, 10 to 15 feet in diameter. Its strange objects and varied scenes strongly excite the curiosity of the junior monks and the laity, whose inquisitiveness is only to be satisfied, or whetted, by short explanatory sermon. And so great is the belief in the power for good of this picture that Tibetan artists eagerly compete for the execution of so meritorious a work.

Before examining the details of the Ajaṇṭa picture it is desirable

**Its form in Lamaism.**

to study the more complete pictorial cycle as now found in modern Lamaism and here exhibited to the Society, *vide* plate VIII. And first of all as to the history of this latter form of the picture.

The picture, in its present form, is said to have been brought to

**Its History.**

Tibet from India. According to the *Chronicles* of the first Dalai Lama, a *Sid-pa-i Khor-lō* in 'the old style' was painted in the Samye Temple by the Indian Buddhist Monk Bande Ye-she in the 8th century A. D. And a slightly different version called 'the new style' was brought to Tibet by the great Indian Paṇḍit Atiśa, or as he is properly called Dipaṅkara Śrī Jñāna about the middle of the 11th century A. D. Buddha himself is reported to have been the author of the original figure which, in order to illustrate his oft repeated dogma of the Causes of Existence, (*Bhava*), he drew in diagrammatic form with grains of rice from a stalk-in-ear

\* And usually on the left side as at Ajaṇṭa.

which he had plucked while teaching his disciples in a rice-field. And Nāgārjuna, the Fourteenth Patriarch who lived about the 2nd century, A. D. and the reputed founder of the Mahāyāna School, is credited with having introduced the pictorial and graphic details of what is called the 'old' style.

The 'new' style differs from the old only in the addition of a figure of Buddha and Avalokita to the outside, and the introduction of a *thub-pa* or *muni*-form of Avalokita into each of the six worlds of re-birth; and in one or two different pictorial symbols for the causes of re-birth, as will be detailed presently. Its origin is evidently later than the epoch of Nāgārjuna. Buddha, it is reported, personally directed its preparation at the request of the indigent king *gZugs-chen-snying-po* (Skt. *Rūpavatsīra*) of 'the middle country,' as a return gift to the heretic (*mūtek-pi*) king Utrayana\* of the *mThah-khob sgra-sgrogs* (= the resounding barons) country. And this latter king by the mere inspection of the picture on was converted to Buddhism. A copy of this famous picture fell into the hands of the great Tantric monk Phag-pa Thogs-med (Skt. *Ārya Asaṅga*) about the Sixth Century A. D.; and later Atīsa brought it to Tibet as heforesaid. Many of the pictorial details are Indian; but most of them are cast in Tibetan mould, as is to be expected where the artists for several centuries have been Tibetans.

The picture consists of a large disc with two concentric circles, the circular form symbolizing the ceaseless round of worldly existence—the 'whirling on the wheel' of Life. The disc is held in the clutches of a monster whose head is seen overtopping the whole. This ferocious demon,† who grips the disc with his claws and teeth, typifies the passionate clinging of worldly people to worldly matters. In the centre of the disc are symbolized the three original sins, and round the margin is the twelve-linked chain of Causes of Re-birth. While the remainder of the disc is divided by radii into six compartments representing the six regions of re-birth. This latter portion, together with the central part of the disc, are supposed to be in a state of perpetual rotation. In the upper part of the region representing hell is the *Bardo* or state intermediate between death and the great judgment. Outside the disc, in the upper right corner is a figure of Buddha pointing to the disc typified by a moon,‡ and in the left hand corner a

\* (?) King Udayana of Kaushāmbi.

† Named *ma-ta-ru-ta* མ་ཏ་རུ་ཏ་མ་

‡ The figure in the moon's disc is represented and regarded by the Tibetans as a hare. One of the Jātaka stories connects this with Buddha's incarnation as a hare.

figure of Chénrésī (Skt. *Avalokita*) the patron god of Tibet and incarnate in the Dalai Lama—who has also in the six *thubas* a presiding representative in each of the worlds of re-birth. These two external figures as well as the *thubas* are absent from the 'old' style of the picture.

The three original sins or 'chief Causes of Demerit' are depicted

**The 3 Original Sins.** as (1) a *pig* which has hold of the tail of (2) a *cock* which has hold of the tail of (3) a *snake* which in its turn, has hold of the pig's tail. The triad thus form a circle which revolves continuously around the world. The pig symbolizes Ignorance, the cock animal Desire or Lust, and the snake Anger or Hate.\* These are at the core of re-birth, and if these three sins be avoided or overcome then virtue results and merit is accumulated.

The causes of re-birth, or *Nidāna* (Tib. *ten-del*)† are categorically given as twelve in the form of a linked chain, the result of the first cause being the cause of the second and so on, the ultimate result being suffering. In isolated fashion each 'cause' is also considered as a veil which hides the truth.

The Illustrations which metaphorically symbolize these causes, and their paraphrase according to the traditional interpretation of the lamas, which must prove so valuable to students of Buddhist philosophy, are the following:—

- I. A blind old woman groping her way = *Ma-rig-pa* or 'want of knowledge' (Skt. *Avidyā*) which is the cardinal cause of existence and misery, leading people to mistake for happiness the miseries of existence. In the 'old' style a man is figured leading the blind woman.

\* These three sins are thus graphically described by Sir EDWIN ARNOLD in *The Light of Asia*, p. 164:—

"*Patigha*—HATE—

"With serpents coiled about her waist, which snuck

"Poisonous milk from both her hanging dugs

"And with her curses mix their angry hiss.

"Then followed *Ruparaga*—LUST of days—

"The sensual sin which out of greed for life.

"Forgets to live; and last of Fame \* \* \* (the) Fiend of Pride

\* \* \* \* \* And—IGNORANCE, the Dam

"Of Fear and wrong, *Avidyā* hideous hag

"Whose footsteps left the midnight darker."

† *Atan-Abrel* འུ་འཇེ་འབྲེ་ལ་

- II. A potter with his wheel making pots=*Du-che\** or 'impressing or con-joining+action' (Skt. *Sañskāra*), showing the fruits of worldly labour are perishable objects—action being mis-directed as a result of ignorance. The Sanskrit equivalent *Sañskāra* is usually translated as 'tendencies or inherited instincts'; but neither the pictorial metaphor nor the Tibetan equivalent easily admit of this interpretation.
- III. A monkey eating fruit=*Nam-she†* or 'entire-knowledge' (Skt. *Vijñāna*) of good and evil fruits—tasting every fruit in the sense of a roving libertine, thus engendering Consciousness.
- IV. A dying man with a physician feeling his pulse=*Ming-zug‡* or 'name+body' or form (Skt. *Nāma-rūpa*), i. e. individual being as the result of consciousness. Its fleeting character is shown by the individual being about to lose his name and personality in death. In the 'new' style the picture shows passengers being ferried across the ocean of life or individual existence.
- V. An empty house=*Kye-ched§* literally 'birth brothers,' or the 5 mortal sense-organs and volition (Skt. *Shadāyatana*), illustrating the organs and will which are the 'result' of individual being—the hollowness of these is typified.
- VI. A pair of lovers kissing=*Reg-pa* or 'contact,' (Skt. *Sparśa*) which results from the exercise of the sense organs and the will. In the 'new' style this is also represented as a man ploughing with a pair of oxen, or manually tilling a field.
- VII. An arrow entering a man's eye=*Tshor-wa* or 'perception' (Skt. *Vedanā*), the result of contact. It includes emotions as well as physical sensation and pain.
- VIII. A man drinking wine=*Sre-pa||* or 'desire for more' (Skt. *Trishṇā*) which results from the exercise of the perceptive faculty.
- IX. A man gathering a large basketful of fruit=*Len-pa* or 'taking' (Skt. *Upādāna*)—grasping indulgence in worldly matters and amassing of worldly wealth, as the result of desire.
- X. A pregnant woman=*Srīd-pa* or 'continuity of existence' or reproduction (Skt. *Bhava*), as the result of the clinging to worldly life and wealth.
- XI. A mother in child-birth=*Kye-wa¶* or 'birth' (Skt. *Jāti*) as a result of No. X.

\* འད་ཆེད། † རྟེན་ཤེས། ‡ མིང་རུའུ་པ། § རྒྱུད་མཆོད། || རྩེད་པ། ¶ རྩེ་བ།



- XII. A human corpse being carried off = *Ga-shi*\* or 'decay + death' (Skt. *Jarāmaraṇa*) with attendant sufferings and associated re-births which are thus made to be the ultimate results of ignorance.

I leave to Sanskrit and Pali scholars the detailed analysis and comparison of these lamaic pictures and their paraphrases.

The six regions of re-birth ('gro-bai rigs,' Skt. *Gāti*) are shown in the middle whorl. They are demarcated from each other by rainbow-coloured cordons representing the atmospheric zones that separate the different worlds. No place is allotted to the other phases of existence believed in by the lamas, viz., the everlasting existence in the Western Paradise of *Devachen*, and of the celestial Buddhas and demoniacal protectors of lamaism, and the expressed absence of such expressions of the current modern beliefs favours the claim of the picture to considerable antiquity. Some of the older pictures in Tibet agree with the doctrine of the southern Buddhists,† in omitting from their theory of metempsychosis, the world of the *Asuras*, enumerating only the remaining five worlds of re-birth.

Classed in the order of their superiority, the six worlds are:—

1st. The heaven of the gods of the Hindus or *Lhá* (=Sanskrit. *Sura* or *Deva*) the highest world.

2nd. The world of the ungodly spirits or *Lhamayin* (=Skt. *Asura*.)

3rd. The world of man or *mi*. (=Skt. *Nara*.)

4th. The world of the Beasts or *du-dō*. (=Skt. *Tiryak*.)

5th. The world of the Tantalized ghosts or *Yi-dag* (=Skt. *Preta*.)

6th. Hell or *Nyal-kham*, (Skt. *Nāraka*) the lowest of all.

Bournouff‡ writing from Chinese and Ceylonese sources classes *mankind* above the *Lhamayin*, but the order now given is that adopted by the lamas. Existence in the first three worlds is considered superior or good and in the last three inferior or bad. And these worlds are shown in this relation in the picture, the highest being heaven and the lowest hell.

Theoretically the place of one's re-birth is determined solely by one's own deeds (*las*=Skt. *karma*) during the latest worldly existence; but the lamas now make faith, charms and ritual take to a large extent

\* ག་ཤི།

† HARRY'S *Man. of Buddhists*, p. 37. The lamaic account is contained in the 'ngon-pa-i mdsod' translated by Lotsawa Bande-dpal rtsags from the work of the Indian Paṇḍit slob-dpal dhyig-gnyen.

‡ *Lotus de la Bonne Loi*, p. 377.

the place of the good works of the earlier Buddhists. Happiness and misery in this life are the result of the virtue and vice of past existences; while virtue and vice in the present life are only rewarded or punished in the next existence.

The judgment in every case is done at the impartial tribunal of *Shinje Ohhō-gyal\** or 'Religious king of the Dead'—a form of the Hindu Yama. He is painted of fearful form, enveloped in flames and wielding a flaming sword, but this is his appearance only to the wicked. The religious see him in the mild form of Chénrésī (*Avalokita*) as incarnate in the Dalai Lama of Lhasa—who he really is, according to the lamas and to give effect to this idea he is usually given a monster attendant on either side as representing Manjusri and Vajrapāṇi—this triad forming the *defensores fidei* of Lamaism. The judgment scene is figured in the upper portion of the compartment devoted to the Hells. Here are seen entering the presence of 'The Great Judge' the souls of a lama, a king, a man, woman, and child:

"Souls that by Fate

"Are doomed to take new Shapes."

They are coming from *Bardo*, that is the ghostly state which intervenes between death and judgment, and during which the spirit is free to roam among its old haunts, and work harm on its quondam enemies and friends. During the interval of *Bardo* therefore, which lasts only for 7, 14, 21, 28, 35, 43, and at most forty-nine days, lamas are employed for a longer or less period, according to the means of the relatives, to prevent the wandering ghost harming the survivors. On arrival in the presence of the king of the dead, the soul is stripped of its clothes and manacled by the attendant *Shinjes* or underling Yamas. And at this juncture the personal angels of the individual who have accompanied him throughout his worldly life and also in *Bardo*—the good angel or *Iha* who sat on his right shoulder and inspired him to good deeds, and the bad angel or *dud* (literally demon) who sat on his left shoulder and tempted him to sin—those two angels now leave him and become incorporated in the god and demon, who stand respectively on the right and left hand of the king of the dead as recording angels and advocates; and they now bear witness for and against the soul which is being tried. These personal angels are practically identical with the *Bonus Genius et Malus Genius* of the Romans—the *Genium Album et Nigrum*.†

The good angel pours out as white counters the good deeds done

by the individual during life; and the demon by black balls exposes the sins.\* These are weighed one against the other in scales to ascertain which preponderates, and the result is called out to the judge.† There is also a record of the deeds in the book named *las-gya dē*. But this impartial judge does not implicitly trust his subordinates. He consults a divine mirror,‡ which he holds in his left hand, and in which the naked soul and all its past deeds, good and bad, are reflected, and he gives judgment accordingly.

If the virtues are in excess of the sins then the soul is reborn in one or other of the first three forms: as a god if the virtue be of the first degree, as an ungodly spirit if the virtue be of the second degree, and as a human being if the virtue is of the lowest order. While those whose sins preponderate are reborn in one or other of the last three forms, the most wicked going to hell and the least wicked to the beasts.

The details of these several regions and their inhabitants according to Tibetan books and traditions are as follow:—

I. THE GODS OR *LIIA*. These are the gods of Hindu mythology rendered finite and subject to the general law of metempsychosis. Their life is the longest

**The Gods.** and most blissful of all the six states of being, but they too must die and be reborn in hell or another of the six regions. Their abode is an Olympus on the summit of Mount Ri-rab (Skt. *Meru*) an invisible mountain-heaven in the centre of the universe according to Hindu and Buddhist cosmography.

The atmosphere of this region is golden yellow. The picture of the region of the gods portrays the following states:—

1. *Godly Birth*. The god is born at once fully developed within a halo of glory from a lotus flower, and is provided with the special attributes of a god,—the oriental symbol of immaterial birth—*viz.*, (1) a lotus footstool, (2) splendid dress and ornaments, (3) goddess companions, (4) a *pag-sam-shing* (Skt. *Kalpataṛu*)§ or wish granting tree which instantly yields any fruit or food wished for, and bends

\* This demon is more powerful than the good angel; and to indicate this and his knowledge of futurity the demon is given the 3rd eye—the eye of fore-knowledge.

† A similar ordeal by scales is a part of the creed of Muhammadans. WASHINGTON IRVING'S *Life of Mahomet*, p 286.

‡ The *las-kyi melong* or mirror of deeds.

§ The Wish-granting tree of Indra's heaven is described in the 45th Section of the *S'ūlpa S'dstra*.

to the hand of the gatherer, (5) a wish granting cow which yields any drink wished for, (6) self-sprung crops (usually painted as Indian corn or maize), (7) in a golden stall a jewelled horse-of-fore-knowledge which Pegasus-like carries his rider wherever wished, throughout the worlds of the past, present, and future, (8) a lake of perfumed nectar (Skt. *Amrita*) which is the *elixir vitæ* and the source of the divine bodily lustre. Shining is a peculiarly divine attribute: the usually accepted etymology of the word for 'divinity,' viz., Skt. *Deva* and Latin *Deus*, is the root *Div*, 'to shine.'

2. *Godly Bliss.* The bliss of the gods is depicted by an assembly of be-jewelled gods and goddesses enjoying themselves in splendid palaces in the midst of a charming garden enamelled with flowers of which they make their wreaths. Gay birds warble in the foliage, and noble animals peacefully roam together there. Amongst the quadrupeds are deer, lions, and elephants with jewelled heads. Amongst the birds are the peacock, parrot, cuckoo and the '*Kala-pinka*,'\* which repeats the mystic 'Om mani padme, Hung.'! One of the blissful conditions of godly life especially dwelt upon, is that the most dainty morsels may be eaten without sense of repletion, the last more being as much relished as the first.

In the centre of this paradise, and on a somewhat more magnificent scale, is the palace of the superior gods entitled "the peerless palace of Indra,"† which is situated in the celestial City of Amarāvati—Indra's Capital. It is invested by a wall and pierced by four gates which are guarded by the four divine kings of the quarters. It is a three-storied building; Indra occupying the basement, Brahmā the middle and the indigenous Tibetan war-god—the *dGra-lha* the uppermost story.

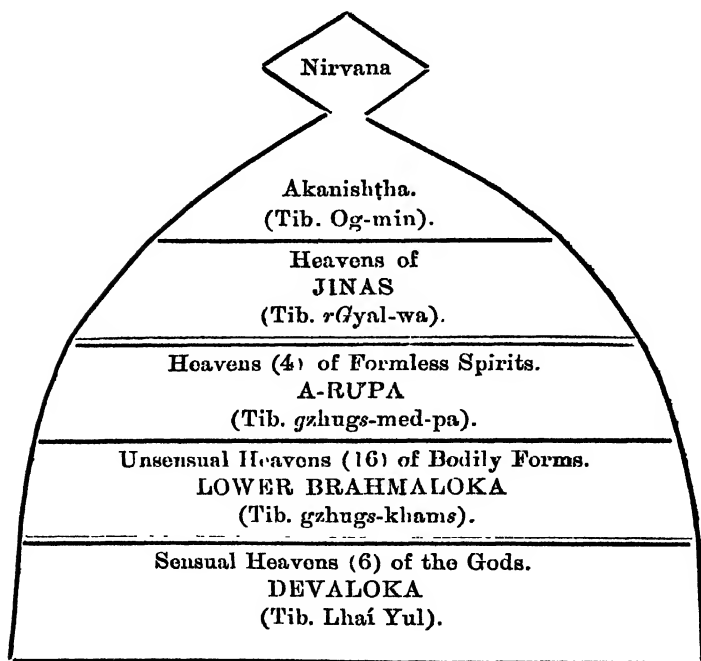
This curious perversion of the old Buddhist order of the heavens is typical of the more sordid devil-worship of the majority of the Lamas. The more learned Lamas, however, adhere to the orthodox Buddhist cosmogony and they pourtray the series of the heavens graphically in the form of a Chaitya, which I here reproduce, and which is very similar to that used diagrammatically by the Southern Buddhists.‡

\* ཐ་ཕ་པྱི།

† 'The transcendently superior house of *LHA-f dhang-po brGya-hyin*.

‡ UPHAM'S *History of Buddhism in Ceylon*, p. 74.

## THE HEAVENS OF THE NORTHERN BUDDHISTS.



The *Trailokya* (Tib. 'Kham's gsum' or 'The Three Regions; comprise The Regions of—

- I. **DESIRE, Kāmadhātu** (Tib. Dod-pai Kham's). The lowest of the 3 regions, comprising the earth and the six *devalokas* (Tib. Lha-Yul) or Heavens of the Gods.
- II. **FORM, Rūpadhātu** (Tib. gzugs Kyi Kham's) or form free from sensuality. It comprises the 18 Brahmaloкас; which are divided into 4 regions of contemplation (Dhyāna).
- III. **FORMLESSNESS, Arūpadhātu** (Tib. gzugs med-pai Kham's). The Highest of the Heavens and near to Nirvāṇa.

The Six *Devalokas* are in series from below upwards:—

1. *Chāturmahārājikāyikas*.—The abode of the 4 Guardian Kings of the Quarters.
2. *Trayastrīṅśas* (Tib. Sum-chu tsa sum) or 'The 33' Vedic Gods



bai-bdag-po\* for counsel. This divinity advised the gods to call to their aid the war-god *dGra-lha* and also to obtain from the depths of the central ocean the invisible armour and the 9 self-created weapons, viz., (1) *rMog-bya khyung-keng-riis*, a helmet of the skeleton bones of the Garuda bird. (2) *Khrab-nyi-shar-lto-rgyab*, the coat of mail shining like the sun. (3) *Lba-khebs-rdorje-go-chha*, necklet. (4) *Lak-hay-mtshön-chhā-lam-lok*, a weapon resisting and returning glove. (5) *Snying-khebs-mdah-mtshön-kun thub*, a breast-plate entirely able to withstand arrows and other weapons. (6) *Piis-khebs-nyes-pa-skyobs-ched*, a knee-cap which defends against destruction. (7) *Phubm-sba-dmar-gling-drug* a 6 embossed shield. The nine sorts of weapons are:—(1) a *hKorlo* or spiked-wheel which entirely routes the enemy; (2) a *dGra-sta*, or an axe which chops the enemy; (3) a *ral-gri* or sword which slices the enemy; (4) a *Gzhu* or bow which scatters the brains of the enemy; (5) a '*mdak*' or arrow that pierces the vitals; (6) a *zhagspa* or noose which ensnares the enemy; (7) a *mDung* or spear which pierces the hearts of the foe. (8) a *Ur-rdo* a whirling sling-stone that produces the sound of a thunder-dragon, and (9) a *Dorje* or thunder-bolt which demolishes the enemy. The story seems founded on the Brahmanical legend of Indra's obtaining from the Sea the talismanic banner which conferred victory over his enemies.†

The gods having obtained these weapons and armour invited the war-god *dGra-lha*, who came enveloped in thunder-clouds and attended by his nine sons, but he demanded worship from Indra and the other gods as the price of his assistance. On receiving this adoration the *dGra-lha* marshalled the forces of the gods and repeating 'Hung!' thrice the warriors became dazzling bright, and shouting *Kye-kye!* thrice their armour shone, and saying *Bswa-bswa!* thrice they became heroes in strength; and shouting *Ha-ha!* thrice they assailed and utterly routed the *Lhamayin*. Since this time the gods have systematically worshipped the *dGra-hlu*.

The *dGra-hlu*, who has many of the traits of the Hindu *Rāhu*, the monster who causes solar eclipses, is figured of white colour clad in golden mail and flying on a white horse through the clouds. In his uplifted right hand he holds a whip with three knots and in his left hand a red banner. His bow-sheath is of a leopard hide and his quiver of tiger skin. A sword is thrust into his waist-belt, and from each shoulder springs a lion and a tiger. The mirror of fore-knowledge is suspended

\* =? *Dorje-ohhang*.

† *Bṛhat Saṁhitā*, translated by Dr. KEEN, J. Roy. A. S., VI, p. 44.

from his neck. He is accompanied by a black dog, a black bear, and a man-monkey; and birds circle around his head. Under his direction the warrior-gods are hurling their weapons across the frontier with appalling effect on the army of the Lhamayin.

4. *The misery of the Gods.* The misery of the gods is also de-

#### Misery of the gods.

icted. The god enjoys bliss for almost incalculable time; but when his merit is exhausted then his lake of nectar dries up, his wish-granting tree, cow and horse die, his splendid dress and ornaments disappear, his garden and flowers wither, his body no longer bathed by nectar loses its lustre and his person becomes loathsome to his goddess-companions and the other gods who shun him, and he dies miserably. If he has led a virtuous life during his existence as a god then he may be reborn in heaven otherwise he goes to a lower region and may even be sent to hell.

II. THE TITANS OR 'UNGODLY SPIRITS'—THE *LHAMAYIN*. These

#### The Asuras.

are the *Asuras* of Hindu mythology. Their leading trait is pride, and this is the world of rebirth for those who during their human career pharasaically boast of being more religious than their neighbours. The class of Lhamayin were originally gods; but, through their pride, they were like Satan expelled from heaven; hence their name, which means 'not a god.'\*

They occupy the region at the base of the Mount Ri-rab and are therefore intermediate in position between heaven and earth.

They have a duration of life infinitely greater than the human, and they have great luxury and resources for enjoyment; but through their pride they envy the greater bliss of the gods, and die prematurely, fighting vainly against the gods for some of the fruits of the heavenly wish-granting tree and the nectar.

Into this world, as into heaven, people are born at once fully grown from a lotus flower; and each immediately on birth receives a beauteous wife and a wish-granting tree and cow. The wish-granting tree and cow yield respectively whatever food or drink is wished for. But they receive no horse of fore-knowledge, or lotus-carpets like the gods.

They have three chiefs, the highest of whom is named *sGra-chen-hdein* (Skt. *Bāhula*). The 3rd is 'the Commander of the Heroes' in their conflict with the gods under *Lhai-wang-po gya jin* (Skt. *Devendresvara*).

Their region is represented of an almost colourless atmosphere. They live in a large fort, the chief building in which is the three-storied palace of their king occupying the highest and the Commander-in-chief the lowest. The ground, both inside and outside the fort, is carpeted with

\* Analogous to this is the common colloquial term *mi-ma-jin* or 'not a man' applied to those who lead vicious and dissolute lives.



flowers of which the inhabitants, male and female, make the wreaths and garlands which they wear. They are dressed in silk; and when the heroes are not engaged in fighting they spend their times in all sorts of gaiety with their wives. In the right hand corner is shown the birth from the lotus flower and the acquirement of a mate, a wish-granting tree and a cow. The rest of the picture is devoted to their misery, which consists in their hopeless struggle and fatal conflict with the gods. The commander of the forces is seen in conclave with his leaders,\* horses are being saddled and the 'heroes' are arming themselves with coats of mail and weapons. Another scene shows the battle raging along the border separating their country from heaven, and the General mounted with his staff as spectators in the background. The warriors of the first line are all killed and horribly mangled by the weapons hurled at them by the gods, these weapons being composed of adamant (*Dorje phallom*), while the weapons of the *Lhamayin* are of mere iron. The *Dorje*—the thunderbolt of Jove is the peculiarly potent weapon of the gods. A most deadly weapon possessed both by gods and *Lhamayin* is a spiked wheel, which is thrown so as to revolve like a circular saw and each of the spikes is armed with a different sort of weapon. The other weapons used by both combatants are arrows, spears, swords, and hatchets. The second line of the troops is in full flight on perceiving the absolute defeat of their companions at the front.

The ultimate fate of every *Lhamayin* is to die painfully warring against the gods with whom they are in constant conflict, and they have no access to the nectar with which a wounded god obtains instant recovery. Another scene depicts the women of the community gathered round "The Reflecting Lake of Perfect Clearness" after the departure of their mates to the battle. In this lake are mirrored forth all the doings and ultimate fate of their absent mates, and there is also shown the region of rebirth of themselves and their spouses—which is nearly always hell owing to the passionate life which they lead in the *Asura* world. And while their lovers die painful and passionate deaths, the misery of the womenfolk of this world is to look into this fascinating lake and experience the horror of such hideous spectacles. In the picture some women are shown peering into the lake and on the other two banks they are giving vent to their grief.

One of the chief sources of the miseries of the *Lhamayin* world is that it has no book and is therefore void of religion. In this view it is lower than the human world, though otherwise of higher rank.

\* Note that greatness of rank is shown by enlarged bodily dimensions.

III. **MANKIND.** The atmosphere of this region is colourless or blue. It shows the miseries and strife of human existence as well as some of its pleasures.

**Mankind.**

The following phases of life are depicted amongst others:—

- 1st. Birth in a cottage.
- 2nd. Children at play.
- 3rd. Manhood, village scenes, people drinking wine under shade of a tree, a man playing a flute, women spinning and weaving, a borrower, two traders, a drunken man.
- 4th. Labour by sweat of brow, men tilling a field, gathering fuel in a forest, carrying a heavy load.
- 5th. Accident, a man and horse falling into a river.
- 6th. Crime, two men fighting, one under trial before the judge, and one undergoing corporal punishment.
- 7th. Temporal Government: the king and his ministers.
- 8th. Old age—decript old people.
- 9th. Disease, a physician feeling pulse of a patient.
- 10th. Death, a corpse with a lama feeling whether breath be extinct, and a lama at head doing worship, and a woman and other relatives weeping.
- 11th. Funeral ceremonies. A corpse being carried off to the funeral pyre on the top of a hill preceded by a lama blowing a thigh-bone trumpet (*kangling*) and rattling a *damaru* drum: he also has hold of the end of a white scarf which is affixed to the corpse. The object of this scarf is to guide the soul by the white path to the pyre so that it may be disposed of in the orthodox manner and have the best chance of a good re-birth, and may not stray and get caught by outside demons. Behind the corpse-bearer is a porter with food and drink offerings and last of all a mourning relative.
- 12th. Religion is represented by a temple placed above all other habitations with a lama and monk performing worship; and a hermit in his cell with bell dorje, and *kangling*; and a chhorten (*chaitya*) being circumambulated by a devotee.

The most pessimistic view is taken of human existence. It is made

**Human miseries.** to appear as almost unalloyed misery—the sensations of ordinary heat and cold, thirst and hunger, depression of surfeiting with food, anxiety of the poor for their daily bread, of the farmer for his crops and cattle, unfulfilled desires, separation from relatives, subjection to temporal laws, infirmities of

old age and disease and accidents are amongst the chief miseries referred to. The lamas categorically divide the miseries of human existence into 8 sections, *viz.* :—The miseries of (1) birth ; (2) old age ; (3) sickness ; (4) death ; (5) ungratified wishes and struggle for existence ; (6) misfortunes and punishments for law-breaking ; (7) separation from relatives and cherished objects ; (8) offensive objects and sensations.

IV. THE BEASTS. The atmosphere of this region is darker, but

#### The Beasts.

it has hills and trees and also some men as hunters and cattle owners ; as it is merely a different phase of the human world. This is a state of greater misery than the human.

This is the world of re-birth for the ignorant, irreligious, and *musteg-pa* (*viz.*, Brahmanical and other heretics) abusive disputators and savages (*kla-klo*).

The inhabitants of this world are divided into (1) the 'free' (*kha-hthor*) or land and air animals, and (2) the imprisoned (*bying*) aquatic animals.\*

The picture shows animals of various kinds devouring one another, the larger preying on the small ; and also small ones combining to hunt and kill the larger ones. Human hunters also are setting nets for, and others are shooting game. Domestic animals are shown laden with burdens or ploughing and being goaded, some are being milked and shorn of their wool, others are being branded or castrated or having their nostrils bored, others killed for their flesh or skin, &c. All are suffering great misery through anxiety and pain of preying or being preyed upon.

In the water is shown a merman—*Nāga's* house, with its inmates in grief at being preyed upon by the Garuda a monster bird like the fabled *roc* which by the rush of air of its wings cleaves the sea to its depths in search for *Nāgas*.

V. THE TANTALIZED GHOSTS OR *YIDAGS*. The atmosphere of this region is of a dark smoky colour. This is

#### The Yidags.

the special world of those who in their earthly career were miserly covetous, uncharitable or gluttonous. It is a kind of outer hell. Its inhabitants are in constant distress through the pangs of hunger and thirst. Jewels, food and drink are found in plenty, but the Yidags are given microscopic mouths and gullets no thicker in diameter than a hair through which they can never ingest a satisfying amount of food for their huge bodies. And when any food

\* Ruskin says "a fish is much freer than a man"—but the Lamas think otherwise.

is taken it becomes burning hot and changes in the stomach into sharp knives, saws, and other weapons which lacerate their way out from the bowels to the surface making large painful wounds. Their constant thirst is expressed by a flame which is seen to issue from their mouth and whenever they attempt to touch water it changes to liquid fire; frequently Avalokita is figured in the act of giving water to these Yidags to relieve their misery. And their tiny legs are unable to support comfortably their large bodies. Four kinds of Yidags are specified, viz.,—(1) *phyi-yi sgrib-pa chan* or 'the foreign or gentile polluted beings,' (2) *Nang-gi sgrib-pa chan* or the lamaic polluted beings, (3) *Zas-skong-gyi sgrib-pa chan* or the eating and drinking polluted beings—these are they who on eating and drinking have the ingested material converted into lacerating weapons, and (5) *kha-thor* or free Yidags.' These are not confined in the Yidag prison but are free to roam about in the human world where they endeavour to injure man.

VI. THE HELLS OR *NYAL-KHAM\** (Skt. *Nāraka*). The atmosphere of the hells is represented of the deepest black:

#### The Hells.

"Light was absent all. Bellowing there groan'd  
A noise, as of a sea in tempest torn  
By warring winds, the stormy blast of hell."

*Dante Canto V. 29.*

The lamaic hell is a true Inferno situated in the bowels of the earth like Hades. Only eight hells are mentioned in the older Buddhist works; but the lamas describe and figure eight hot and eight cold hells and give two extra hells, named respectively *nyal-tshe-wa†* which includes the state of being flies and insects in the human world, and *nye-khor-wa* an outer Hades through which all those escaping from hell must pass without a guide.

The *NYE-KHOB‡* is at the exit from, and outside Hell, properly so called. It is divided into five sections. The first bordering hell consists of hot suffocating ashes with foul, dead bodies and all kinds of offal. Then is reached a vast quagmire, beyond which is a forest of spears and spikes. Then a great deep ocean of freezing water; on the further shore of which the ground is thickly set with short squat tree trunks each surmounted by three sharp spikes which impale the unwary groping fugitives. Refer-

\* དཔྱུལ་ཁམས།

† ཉེ་ཚེ་བ་ = 'near to life.'

‡ ཉེ་འཁོར་ = 'near to cycle' (i. e., re-birth).

ence to these last two localities occurs in the ordinary Litany for the dead which says 'may his *chhu-wo-rab-med* ocean become a small rivulet, and the *shal-ma-ri* tree a *pag-sam shing* or divine wish-granting tree.'

Those who have sinned in anger are sent to the hot hells; while those who have sinned through stupidity go to the cold hells; and each receive punishment appropriate to his misdeeds during life. The duration of stay in the cold hells is very much shorter than in the hot hells as the sin is of a more passive and venial kind.

The hot hells are seen in the picture to the left (of the spectator) and the cold hells to the right. The hot hells of the lamas bear names of apparently identical meaning with hells of the Southern Buddhists. The cold hells seem to be an invention of the lamas.

I. THE HOT HELLS. These are enveloped by a wall of fire and many of the fearful scenes are fit to illustrate Dantes' *Inferno*. The *shinjes* or executioners are hideous flame-enveloped monsters with heads of various animals, and all their pincers and other instruments of torture are red-hot. The following are the hot hells.

1. *Yang sô\** (Skt. *Samjīva*) = 'again revived.' Here the bodies are cut and torn to pieces and then reunited, only to have the process repeated *ad infinitum* throughout the period spent in hell. This restoration of the body is an essential part of the process in all the hells. The body when thoroughly mangled is restored and the racking torture applied afresh, so that the agony never ceases.

2. *Thi-nag†* (Skt. *Kālasūtra*) = 'black lines.' Here the bodies are nailed down and 8 or 16 black lines drawn along the body which is then sawn asunder along these lines by a burning hot saw. Another punishment here is the especial one of the slanderer or gossip who has his or her tongue enlarged and pegged out and constantly harrowed by spikes ploughing through it.

3. *Du-jom‡* (Skt. *Samghāta*) = 'concentrated oppression.' Here bodies are squeezed between animal headed mountains, or monster iron books, this last is an especial punishment for monks, laymen and infidels who have disregarded or profaned the scriptures, and also for priests who have taken money for masses which they have not performed. Others here are pounded in iron mortars and beaten on anvils.

4. *Ngu-bôd§* (Skt. *Raurava*) = 'weeping and screaming.' The torture here is to be kept in glowing white iron houses and have melted iron poured down the throat.

\* ཡང་སྐྱེད།    † ཐི་ནག།    ‡ ལུ་ཤུག་ལྷུང་།    § ལྷུ་འབྱེད།

5. *Ngu bod chhenpo* (Skt. *Mahāraurava*) = 'greater weeping and screaming.' Here they are cooked in cauldrons of molten iron.

6. *Tshawa\** (Skt. *Tāpana*) = 'heat.' The body is cast upon and transfixed by flaming iron spikes in a fiery chamber.

7. *Rab tu tshawa* (Skt. *Pratāpana*) = 'highest heat.' A three spiked burning spear is thrust into body, and the latter is then rolled up within red-hot iron plates.

8. *Nar-med†* (Skt. *Avīchi*) = 'endless torture.' This is the most severe and longest punishment. The body is perpetually kept in flames though never consumed. This is the hell for those infidels and others who have injured or attempted to injure Lamaism or Buddhism.

II. THE COLD HELLS are encircled by icy mountains and have attendants of appalling aspect, as in the hot hells.

### The Cold Hells.

1. *Ohhu-bur chen* (Skt. *Arbuda*) = 'blistered or chapped.' The torture here is constant immersion of the naked body in icy cold water, under which the body becomes covered with chilblains.

2. *Ohhu-bur dolwa* (Skt. *Nirarbuda*).‡ The chilblains are forcibly out and torn open producing raw sores.

3. *A-chhu* (Skt. *Aṭaṭa*) = 'Achhu' an exclamation of anguish beyond articulate expression—which resounds though this hell.

4. *Kyi-hüd* (Skt. *Hahava*). A worse degree of cold in which the tongue is paralysed and the exclamation *Kyi-hü* or *Ha-ha* alone possible.

5. *So-tham-pa* (Skt. *Ahaha*). Here both jaws and teeth are spasmodically clenched through cold.

6. *Ut-pal tar gé-pa* (Skt. *Utpala*).§ Livid sores which become everted like blue *Ut-pal* flowers.

7. *Péma tar gé-pa* (Skt. *Padma*). The raw sores become like red lotus flowers.

8. *Péma Ohhenpo tar gé-pa* (Skt. *Pundarīka*). Raw sores where the flesh falls away from the bones like the petals of the great red lotus; and which are continually pecked and gnawed by birds and insects with iron beaks.

It is a redeeming feature of the Buddhist hell that its torment is not everlasting. After the sins which have

### Duration of torment in hell.

been committed in the previous existence are expiated—which may require a period ranging from a year, or two, to thousands of years, the soul is reborn in another world, usually the human. This result is due to the merit of good works done in a former existence. The lamas explain it by saying that it is

\* རྩ་ཡ།    † མར་མེད།    ‡ རྩ་ཡུ་ཐོག་ཡ།    § རྩ་ཡུ་ཐོག་ཡུ་ཐོག་ཡ།

like the discharge of a criminal who has expiated his offence in jail ; on release he gets back his clothes and any other properties he can justly lay claim to, and also the benefit of any virtuous deeds he formerly had done.

But through the aid of the lamas the duration of the stay in hell can be reduced to a few days or even hours. **Extraction from hell by the Lamas.** though the ordinary mass for the dead urges the spirit to proceed direct to the Western Paradise, in practice the vast majority of human beings go inevitably to hell—the proportion of those who escape hell being not greater than the proportion which the quantity of earth which can lie on a finger nail bears to a fistful of earth. As a consequence special prayers to neutralize this hell-going tendency are always done within the period of *Bardo*, i. e., 49 days succeeding death ; and when the *Bardo* period is over, it is customary to apply to the lamas for information as to where the soul then is. The lamas on casting lots and referring to certain books find the particular hell in which the soul is being tortured. An elaborate and costly worship is then prescribed for the extraction of the soul, and this is usually declared successful, though not unfrequently it is declared—as in the case of the priest and his client in *Lever's Story*—to be only partially effectual, and then it has to be repeated on a still more costly scale. The usual worship done in such cases is called *dge-ba* or virtue. It consists of offerings of (1) food, lamps, &c., to the Gods ; (2) food, money, and other presents to the Lamas ; (3) and of food, beer, clothes and other charity to the Poor. And the Lamas in return for their fees do masses, and especially appeal to *Thukje Chhenbo* or 'The Greater Pitier' who presides over the six worlds. The lamaic hell is not of a purgatorial or cleansing nature. It is merely a place of expiation where punishment is awarded in proportionate degrees for offences committed during the previous existence.

The six *Thub-pas* (=Skt. *Muni*) who preside over the six worlds

**The six Thub-pas.**

appear only in the 'newer' style of the Wheel of Life. They are all 'emanations' from

*Chenresi* in his form of 'the great pitier.' Out of pity for the misery of the animal beings of the six worlds he became incarnate in each of these worlds. (1) In the world of the gods as *rGya-byin dkar-po* or the white, vast giver (*Indra*), with a harp and the mystic six-syllables (i. e., *Om mani padma Hung !*) he soothes the gods' misery of *hpho-thing*. (2) In the *Lhamayin* world as *Thags-bzang-ris ljang-khu* or the green weaver of good figures (and 2nd in rank to *Rahula*) dressed in full armour or holding a coat-of-mail he assists the *Lhamayin* in their

battles, but at the same time represses their fighting propensities. (3) In the human world as *Shakya Ser-po* or 'the Golden Sakya Muni' holding an alarm-stick and begging bowl he preaches salvation to men. (4) In the world of the beasts as *Senge-rab-rtan mihing-ga* or 'the Indigo coloured highest supported Lion,' holding a book he preaches the six syllables. (5) In the world of the Yidags as *Kha-hbar dmar-po* or 'the Red Burned Mouth, holding a cowrie-shaped box, he preaches the six syllables. (6) In hell as *Ohhos-rgyal nag-po* or the Black King of Religion, holding water and fire he preaches the six syllables.

It is possible that this introduction of Chenresi into each of the six worlds and his identification also with the Judge of the Dead was the invention of the great Priest-King, Lama Ngag-wang Lô-zang, with the view of increasing his own and successors' prestige as the human incarnation of Chenresi (Avalokita), the Judge of the Dead and the Regent of each of the worlds of Existence.

We are now in a position to examine the mutilated fragment of the Indian picture—the so-called 'Zodiac'—in the Ajanṭa cave. When Mr. Ralph visited this cave in 1828,\* only about a third apparently was then wanting. In 1879 Mr. Burgess notes that only 'a mere fragment now remains,'† and it is the photograph of this fragment which is the only illustration now extant; and as this photograph has not been published and it is essential for comparison with the Tibetan form of the picture it is here re-produced *vide* plate VII.

This Ajanṭa picture it will be at once remarked differs from that above described, mainly in its realistic details being restricted to different phases of human and animal life.

**Its details.** The monster who holds the disc has, as in the Tibetan picture, gripped it with his tusks; but his hands have not seized it with such firmness, and he wears bracelets

and other ornaments—in some of the Tibetan pictures he is also represented with ornaments. Burgess notes,‡ that the arms of this monster are *green*. It is probable that originally brown pigment has become thus changed, by oxidation or otherwise, during the lapse of centuries, as in Tibet the monster who holds the disc is always painted brown.

In the centre of the disc are no symbolized original sins; but the snake which is one of this triad is figured

**The external snake.** outside and to the left of the disc holding

\* B. A. S. J., 1836.

† *The Baudḍha Rock-Temples of Ajanta*, 1879, p. 62.

‡ *Op. cit.*, p. 62.



persons in a variety of occupations enslaved in its coils. It is possible that the remaining two original sins were also figured outside the disc. An animal resembling a pig seems to have seized hold of the head of this snake.

The pictures around the margin of the disc illustrating the causes of re-birth are of special interest for their metaphorical meaning. Burgess' statement that these have been sixteen in number was evidently deduced from the first pair almost coinciding with one of the internal divisions; but it will be noticed that none of these pictures really bear any such exact relation to the internal divisions. The original number must have been twelve.

As the fragment comprises little more than defaced portions of the upper half of the disc, we have only the first six and the last three pictorial causes of re-birth for comparison with those of the lamaic picture.

1st. *Avidyā*—which seems here to have been made the twelfth *Nidāna*—is figured as a man leading a (blind ?) camel, instead of a man leading an old blind woman as in the lamaic picture. The idea is practically the same; but the difference in the emblem picture, it seems to me, is easily explained. The Lamas constructed many of their copies of the larger Indian Buddhist pictures and images from the written descriptions and notes of pilgrims. The Tibetan word for 'a camel' is 'ruṅga-mo' and for 'an old woman' 'rgad-mo' (the *d* is silent); and as camels are almost unknown in Central Tibet, the word for camel was evidently interpreted as 'an old woman' to which word it bears such close resemblance. We may take it for granted that the camel of the Indian picture was *blind*, as blindness is always an essential part of the Lamaic definition of this emblem.

2nd. *Saṃskāra*. This is identical with the Lamaic picture, viz., a potter making pots.

3rd. *Vijñāna*. This too is identical with the lamaic picture.

4th. *Nāma-rūpa*. This too is identical with the lamaic picture.

5th. *Ṣaḍāyatana* or 'The sense organs.' This is pictured by a mask, —which is a much better representation of 'the empty house' of the senses than the empty house ordinarily depicted by the lamas.

6th. *Sparśa* or 'Contact.' Only the feet of two figures are seen, but the attitude and dress seem to indicate 'a pair of lovers kissing' as in the lamaic picture for No. VII. In most Tibetan pictures I have noticed that causes Nos. VI and VII are transposed.

10th *Bhava*. What I consider to be No. X, may be a pregnant woman drinking nourishment.

11th. *Jāti* or 'Birth' represents a child connected by a 'navel-string' with its parent.

12th. *Jarāmarāṇa* or 'Decay and Death.' This is a sitting figure, which the lamas, to whom I have shown the picture, say is a corpse bound and ready for removal.

The body of the disc appears to have been divided by radii into

A pictorial cycle of eight compartments, of which only portions of Buddha's own existence.

partments, seem to me, illustrations of some of the more celebrated of the mythical former births of Buddha as contained in the *Jātaka* tales, e. g., a brahman giving charity, existence as Indra and earthly kings, a *garuḍa* and snake, an elephant, a deer, a monkey, a pigeon, a thief, ascetic, &c., &c. This Ajanta picture therefore seems to be the Pictorial Cycle of Existence of Buddha himself.

*The Míhrán of Sind and its Tributaries: a Geographical and Historical Study.*—By MAJOR H. G. RAVERTY, *Bombay Army (Retired).*

(With three plates).

The identification of the routes taken by Alexander the Macedonian, and the countries, towns, and rivers mentioned in his campaigns, extending from the mountains of Hindú-Kush to the Persian Sea, included in the present Afghán state, the territory of the Panj-áb, and Sind, has exercised the ingenuity of many oriental scholars, and also of many students of oriental subjects.<sup>1</sup> Later on come the travels of the Chinese pilgrims, Fa Hian and Hwen Thsang, of whom the former visited India about seven hundred, and the latter nearly one thousand years, after the time of Alexander; and these also exercise the ingenuity of scholars and students, and exercise it very greatly too, particularly the travels of the last named pilgrim, who enters into much greater detail. He remained many years in India, and is said to have been "well-versed in the Turkí and Indian languages," but he chose to write all the names of places and persons in the Chinese.

Most of the writers on these subjects, if we exclude their "identifications" in the Afghán state, appear to have based their theories chiefly upon the *present courses* of the rivers of Northern and Western India, which, probably, have altered their courses a hundred times over, and to have expected to find places on their banks *now* as they stood

<sup>1</sup> I make a difference between the two, as between those who can refer to the native writers for themselves, and those who have to depend upon Dow's and Briggs's '*Ferishta*,' and the like.

more than two thousand years ago.<sup>2</sup> I am not going to attempt, in the present paper, to improve upon these interesting researches, although I cannot help, farther on, pointing out two or three palpable errors: What I propose to do here is to notice some of the numerous fluctuations in the courses of the Sindhu, Ab-i-Sind, or Indus,<sup>3</sup> and of the rivers of the Panj-áb. The changes in the courses of two of these rivers, together with the drying up of the Hakrá, Wahindah, or Bahindah were so considerable that they reduced a vast extent of once fruitful country to a howling wilderness, and thus several flourishing cities and towns became ruined or deserted by their inhabitants.

At page 1150 of my "Translation of the *Tabakát-i-Násirí*," there is an account of the despatch of armies into different parts on the accession of Kyuk *Khán* as ruler over the Mughal empire founded by his grandfather, the Chingiz, or Great *Khán*.

One of these armies was detailed for the invasion of Hindústán; and the Nú-ín or Nú-yán (both modes of writing this title being correct), Mangútab, who was at the head of the Mughal *mings* or *hazárah*s occupying, or located in, the territories of Tukháristán, *Khatl-án*,<sup>4</sup> and Ghaz-nih,<sup>5</sup> was appointed leader of the forces in question. He was an aged man, and had been one of the Chingiz *Khán*'s favourite officers.

In the year 643 H., which commenced on the 28th May, 1245 A. D., he invaded the Dillí Kingdom by way of the Koh-i-Júd, Namak-Sár, or Salt Range, and the Sind-Ságar Do-ábah, keeping along its western frontier, and entering the province dependent on Multán. His object was first to assail the frontier strongholds of Multán and Uchchah or Uchchh, both then situated in one and the same Do ábah, the Sind-Ságar above mentioned. He began with Uchchh, which, at the period in

<sup>2</sup> See note farther on.

<sup>3</sup> I need scarcely mention that the name Indus was, and is unknown to Oriental geographers and historians. It was Europeanized, if I may say so, by the Greeks out of Sindhu, or they may have called it the Indus as being the river separating Hind from I-rán-Zamín, their "Ariana," and not intending it to be understood that Indus was the proper name of the river; for it was known to the Hindús as 'Sindhu' or 'the River,' and 'Ab-i-Sind' by the early Muhammadan writers, and sometimes 'Nahr-i-Míhrán.

<sup>4</sup> Incorrectly styled "*Khotlán*" in the "essay" by Yule, in Wood's "*Oxus*" and other books of travels: the first vowel is short 'a.' This district or territory was famous for its horses, which, from the country, were known as *Khatli* horses.

<sup>5</sup> The name of this famous city is thus written by the oldest authors, *nih* being the Tájgik for city. The other forms of the word are merely vitiated forms of the above. "Ghasna," as some European authors write it, is totally wrong. The other forms of the word are *Ghaz-nín*, and *Ghaz-ní*, but the first is the correct one.

question, was under the charge of the Khawájah (Eunuch) Sálih, the Koṭ-wál, who was acting as the Deputy of the feudatory of the district, Mu-ayyid-ud-Dín, Hindú Khán, the Treasurer of the Dihlí kingdom.<sup>6</sup> At this period, Multán and its territory was in the possession of Malik Saif-ud-Dín, Hasan, the Kárlúgh, Karlugh, Kárlúk, or Karluk Turk, who was not a vassal of the Dihlí kingdom,<sup>7</sup> and who had lately been dispossessed of his own territories beyond the Indus by the Mughals, and had recently seized upon Multán.

In due course the Nú-in Mangútah, reached the banks of the Sind near Uchchh—it must have been about the middle of October of that year, as the news reached Dihlí in the following month, in Rajab—and Malik Hasan, the Kárlúgh, speedily abandoned Multán, and, embarking on the Ab-i Sind, started down that river in order to gain Sindú-stán, as the city of Siw-istán and its territory, since known as Sihwán, was then called, to gain the port of Dewal or Debal ('*b*' and '*w*' being interchangeable) on the sea coast of Sind.<sup>8</sup>

<sup>6</sup> See under "Shamsiah Maliks," no. ix, page 744 of the "Tabakát" Translation, and also page 809. There it says the Mughals "invested the fortress of Uchchh, which is one of the famous strongholds of the country of Sind, and the territory of Manṣúrah"; and, that, "Within that fortress, a Khawájah-Saráo [Eunuch], one of the servants of Malik Táj-ud-Dín, Abú-Bikr, named Mukhlis-ud-Dín, was the Koṭ-wál Bak [Seneschal], and a slave of Kabír Khán, Aḱ-Sunḱar, by name, was the Amir-i-Dád [Lord Justiciary].

<sup>7</sup> He was independent, and coined money in his own name. At the period referred to, after having previously submitted to the Mughals, he found their yoke so unbearable that he abandoned Ghaznih, Karmán, and the territory north of, and including, the Koh-i-Júd or Salt Range, and occupied Multán. Some of the coins of this same Kárlúgh Malik have recently been found near the village of Ohittah in that very Koh-i-Júd. The tribe of Kárlúgh, Karlugh, Kárlúk, or Karluk Turks gave name to the tract of country in the Panj-áb, miscalled by us "Hazara" but in history, called the country or district of the Hazárah-i-Kárlúgh, that is, where the ming, or hasdrah, or legion, consisting of Kárlúgh Turks, was located when the Khwárazm Sháhs dominated over those parts. See the Society's "Transactions" for November, 1889, where the coins of Saif-ud-Dín, Hasan, the Kárlúgh, are noticed under the designation of "Qurlagh." In Thomas's "Pathán Kings of Dehli," he is called "a rebel" at page 97, but, as he was never subject to the Dihlí rulers, he was not a rebel. He was a feudatory under the Khwárazm Sháhs who held those parts, and, after their fall, had to submit to the Mughals. More respecting him and his son will be found in my Tabakát-i-Náṣirí. See notes on page 175, and page 177. His son, Malik Náṣir-ud-Dín, Muḥammad, was neither "a powerful monarch," nor did he ever hold dominions in Sind. See "Tabakát-i-Náṣirí," pages 781, 859, 877, and 1164.

<sup>8</sup> If Multán had then another broad and unfordable river immediately on its west side, as the Chin-áb now flows, Malik Hasan would scarcely have needed to evacuate Multán, and probably would not have done so, and, certainly, not with

Mangútah having made his preparations, proceeded to invest Uchōh. The author of the *Ṭabaḳāt-i-Nāṣirī* says, that he first destroyed the environs and neighbourhood round about the city. "The people of the fortress put forth the utmost exertions and diligence, and used immense endeavours in defending the place, and despatched great numbers of the Mughals to hell." Having failed in all their endeavours to take the place, and, in the last assault, having lost one of their principal leaders, and hearing of the near approach of the forces of the Dihlī kingdom under Sulṭān 'Alā-ud-Dīn, Mas'ūd Shāh, in person, they began to give up hopes of taking the fortress. To continue in the words of the author: "When the sublime standards reached the banks of the river Bīāh, the army moved along its banks<sup>9</sup> towards Uchōh, as has been previously related and recorded. On the Mughal forces becoming aware of the advance of the forces of Islām, and the vanguard of the warriors of the faith having reached within a short distance of the territory [dependent on Uchōh], they did not possess the power of withstanding them. They retired disappointed from before the fortress of Uchōh, and went away; and that stronghold, through the power of the sovereign of Islām, and the Divine aid, remained safe from the wickedness of those accursed ones."

This detailed account of the investment of Uchōh is kept by the author for the last part of the *Ṭabaḳāt*, but he also refers to the event in two earlier passages. Under the reign of Sulṭān 'Alā-ud-Dīn, Mas'ūd Shāh, page 667, he says: "In the month of Rajab of this same year, news was received from the upper provinces, of an army of infidel Mughals having advanced towards Uchōh, of which force the accursed Mangútah was the leader. Sulṭān 'Alā-ud-Dīn, Mas'ūd Shāh, for the

such precipitation as he used on the occasion in question. At that period, however, no river intervened between Multān and the A'b-i-Sind or Indus, which was almost as close to it then as the Chin-āb is now, and, consequently, Malik Ḥasan's retreat might have been cut off. He, accordingly, embarked on the combined rivers Chin-āb (including the Bihat) and Rāwī, which then ran north and east of Multān, and united with the Bīāh some miles farther south, and so, placing a river between himself and the Mughals, he was enabled to get down into Sind, without danger of molestation, by the Bīāh and Hakrā, or Wahindah, into Lār, or Debal.

What afterwards became of him has never been mentioned in history, and it is not improbable that he may have reached the Dakhan, and have taken service there, and there ended his days. An account of the *Kārlūgh* or *Qarluḡ* Turks will be found in my "Translation of the *Ṭabaḳāt-i-Nāṣirī*," note to page 877, and note to page 1130.

<sup>9</sup> This was after the combined Bihat, Chin-āb, and Rāwī had united with it, and below the point of junction indicated in the map showing the ancient courses of these rivers at the period in question which will be given later on.

purpose of repelling the Mughal forces, assembled the troops of Islām from various parts. On their arrival on the banks of the Bīáh, the infidels withdrew from before Uchchh, and that success was gained. The writer of this work was in attendance on the sublime Court on that expedition; and persons of understanding and men of judgment agreed, that no one could point out to view anything of an army like that host and gathering in years gone by. When information of the numbers and efficiency of the victorious forces of Islām reached the infidels, they decamped, and retired towards Khurásán again."

In his account of Malik Ghiyás-ud-Dīn, Balban,<sup>10</sup> who, before he succeeded to the throne, bore the title of Ulugh Khán-i-A'zam, the author says: "In this same year [643 H.], Mangútáh, the accursed, who was one of the Mughal leaders,<sup>11</sup> and of the Maliks of Turkistán, led an army from the borders of Tá-e-kán and Künduz, into the territories of Sind, and invested the fortress of Uchchh, which is one of the famous strongholds of the country of Sind, and of (*i. e.*, included in) the territory of Manšúrah. \* \* \* While every one of the [other] Amírs and Maliks was showing indecision about this undertaking, Ulugh Khán-i-A'zam showed determination in carrying it out; and, when the royal standards moved forwards towards that [threatened] quarter, Ulugh Khán-i-A'zam—Be his power prolonged!—despatched guides in advance on the line of route, so that [the troops] used to get over the marches with rapidity. He was wont to represent to the troops that the [next] halting place would be about eight *kuroh* off, and [consequently] about twelve *kuroh*, and even more than that, they used to march, until the troops reached the banks of the Bīáh, and passed over that river; and he conducted them to the banks of the Ráwah [Ráwí] of Láhór.<sup>12</sup>

<sup>10</sup> See the Shamsiáh Maliks, No. XXV, page 809.

<sup>11</sup> This same leader had been one of the commanders with the Bahádúr, Tá-fr, who, in the sixth month of 639 H. (December, 1241 A. D.), had attacked and sacked Láhór, the whole of the inhabitants of which were either massacred or carried off captive. See "Translation," pages 727, and 1132-1136.

<sup>12</sup> As the Bīáh and Ráwí then flowed, centuries before either the Sutlaj or the Bīáh deserted its bed, the Dihlí forces would be in the fork between the Ráwí and the Bīáh, in the Bári Do-ábah, near their junction, with their flanks protected by the rivers, and in a position to threaten the Mughal line of retreat. Having crossed the Ráwí above the junction, or below the junction of the three rivers, they could have marched down the Do-ábah to Uchchh without having any other river to cross, and reinforcements from Multán could have joined them. On the other hand, they would have caught the Mughals in the fork between the Ab-i-Sind or Indus, which flowed near Uchchh on the west, and the Sind Rád, described further on, on the east, both unfordable rivers, and, in case of defeat, the Mughals would have been

"In this manner used he to show such-like determination on this expedition, and such lion-heartedness, and was wont to stimulate the Sultán and Maliks to repel the infidel Mughals, until Monday, the 25th of the month Sha'bán, 643 H. (about the last week in January, 1246 A. D.), when intimation reached the royal camp that the army of infidel Mughals had raised the investment of Uchchh. The cause of it was, that, on reaching the vicinity of the river Biáh, Ulugh Khán i-A'zam appointed couriers, and directed so that they wrote letters from the sublime presence to the garrison of the fort of Uchchh, and announced to them the approach of the royal standards, the vast number of the array and elephants, the host of cavalry with the army, and the courage of the soldiery in attendance at the august stirrup, and despatched them towards the fortress of Uchchh. A division of the army was moved on in front, to act as a reconnoitring force and form the advanced guard.

"When the couriers reached the vicinity of Uchchh,<sup>13</sup> a few of these letters fell into the hands of the host of the accursed,<sup>14</sup> and some reached the people of the fortress. On the drum of joy being beaten in the fort, and the subject of the letters, the advance of the victorious army, and approach of the royal standards, becoming manifest to the accursed Mangútal, and the cavalry of the advanced guard approaching the banks of the river Biáh of Láhor, near to the frontiers of the territory of Sind, fear and terror became manifest in the heart of the Mughal [leader].

"When Mangútal became aware of the advance of this great army," the author continues, "and that it moved towards the river Biáh,<sup>15</sup> near the skirts of the mountains, and from thence, in the same manner, was marching downward along the banks of that river,<sup>16</sup> he made inquiry of

caught in a trap and annihilated. Such being the case, the Mughals retired by three divisions, up the Sind-Ságar Do-ábah by the route they had come, keeping close to the east bank, before any of the Dihlí troops, beyond the detachment referred to, had crossed the Ráwí.

<sup>13</sup> It is probable, nay, almost certain, that these couriers came down the right bank of the Biáh the whole way, leaving the great army when it crossed the Biáh and the Ráwah or Ráwí on the way to Láhor. A glance at the map indicating the former course of the Biáh and the other rivers will show why they did so.

<sup>14</sup> The author had good reason for calling the Mughals "accursed." They had ruined and depopulated his native country and the parts adjacent, the tracts between Hirát and Kábul and Ghaznín, exceedingly populous and flourishing before the invasion of the Mughals, from whose devastations they have not recovered to this day.

<sup>15</sup> Thus showing that it still flowed in its old bed; for, after it left it, it lost its name, and that was only in the last century.

<sup>16</sup> Below the junction with the others previously mentioned as uniting with it near Multán to the south.

some persons what might be the reason of the deviation of the army of Islām towards the skirts of the hills, because that was a longer route, while that by Sarastī and Mārūt was nearer. They replied, that, on account of the number of islands on the banks of the river,<sup>17</sup> there might not be a road for the army of Islām. Mangūtah remarked: "This is a vast army: we have not the power to resist it: it is necessary to retire;" and fear overcame him and his army, lest, if they remained longer, their line of retreat should be cut off.<sup>18</sup> Their army was formed into three divisions, and routed, they fled, and numerous captives, both Musalmān and Hindū, obtained their liberty."

Before I proceed to adduce my authorities and information on this subject, I had better refer, as briefly as possible, to an article which appeared in a late number of the *Calcutta Review*, entitled "The Lost River of the Indian Desert."<sup>19</sup>

The writer of the article in question, in support of his arguments respecting the period at which he supposes the Hakrá to have disappeared, or, more correctly, the period at which its waters ceased to flow, quotes the "Ṭabaḳāt-i-Nāṣirī" as his authority, from a portion only of that work contained in Elliot's "Indian Historians," Vol. II, p. 363, which was translated by the late Mr. J. Dowson, Hindūstānī Professor

<sup>17</sup> To this the following note was appended. "Long, narrow banks of sand, probably extending, in places, for several miles, and sometimes, of some height, are doubtless meant here, such as are found after the annual inundations, with water, sometimes of considerable depths between; and to the effects of the past inundation, the people no doubt referred. These would have caused great obstruction, and have taken much time to cross, as well as have entailed great trouble, therefore, the forces of Dihlī kept farther north, and made their march a flank movement at the same time, which may have been the original intention. In what direction they went may be seen farther on." • Here it has been already related.

<sup>18</sup> I wish this last expression to be particularly noticed. See also, and compare, this passage with that in Elliot's *Historians*, Vol. II, pp 363-64.

<sup>19</sup> I may mention that part of the present paper was originally intended as a note to the investment of Uchhah in my "Translation" [See page 1155], but, on after consideration, on account of its length, I thought it would be more advisable to publish it as a separate article in the "*Journal*," after completing the Ṭabaḳāt-i-Nāṣirī. I unfortunately mislaid the rough draft, which our lamented friend, Mr. Arthur Grote, saw and read over; and he agreed with me, that it was better adapted for publication in a separate form. In March 1887 I found the MS. quite unexpectedly, among some maps, after I had given up all hope of seeing it again, as I feared I had burnt it, by mistake, along with some old proofs of the "Translation." The appearance of another article on the same subject, by Mr. R. D. Oldham, in the Society's "*Journal*," No. IV of 1886, determined me no longer to delay its publication. What I have here stated will explain my reference to "a late number of the *Calcutta Review*."



at the Staff College, previously alluded to, from the incorrect Persian text of the original published at Calcutta; but, from that translated portion contained in Elliot's work, the *detailed* account of the investment of Uchchh is omitted altogether. Thus it will be seen, that the observations contained in the *Calcutta Review* article, are based entirely upon this single extract in Elliot's "Historians."<sup>80</sup> The writer, consequently, has been *partly* misled by the rendering of an incorrect passage in the Calcutta printed text, as stated in a note to my "Translation," and *partly* by his *own* errors in reading "*drought*" where "*fissures*" are mentioned in Elliot, and in losing sight occasionally of the old course of the Bíáh, or "Bias" previous to its junction with the Sutlaj, when both rivers lost their names and became the Hariári, Nílí or Ghárah.

The passage quoted from Elliot occurs in the account of the Ulugh Khán-i-A'zam, under the events of the year 643 H., and is as follows. "In this year the accursed Mankúti (Mangú Khán)<sup>81</sup> marched from the neighbourhood of Tálikán and Kunduz into Sindh. \* \* \* The Dihlí army arrived on the banks of the Biyáh, made the transit of the river, and reached Láhor on the banks of the Rávi. \* \* \* Trusty men record that when Mankúti heard of the approach of the army of Islám, under the royal standard, that it proceeded by the river Biyáh, near the skirts of the hills, and that it was advancing along the banks of the river, he

<sup>80</sup> My translation of this particular portion of it, perhaps, had not reached India at the time.

<sup>81</sup> The late Mr. J. Dowson, the Editor of Elliot's "Historians of India," and translator of some, and reviser of all the extracts from the *Tabakát-i-Násiri* contained in that work, turned the old, one-eyed leader of the time of the Chingiz Khán into Mangú Khán, his grandson, and called him *Mankúti* instead of Mangútah. The Great Ká'án, Mangú, was the son of the Chingiz Khán's youngest son, and did not succeed to the sovereignty until *five years* after this investment of Uchchh, which happened during the reign of Kayuk, and, moreover, he was never near the Indus in his life, nor within hundreds of miles of it. See "*Tabakát*," Translation, note to page 1180. Blochmann, in his printed text of the *A'in-i-Akbari*, where this investment is briefly referred to, has منگوه, the shoulder of the ع being left out, made that letter 'l' instead of 'g,' and the letter ج—'t'—has been turned upside-down and made '—y.' These are probably printer's errors, because in the MSS. of the work the name is correctly written. The author of the "*Notes on the Lost River*," presently to be noticed, also has "Mangú Khán," but "*Mankúti*" is left out altogether! It is wonderful how people will jump at impossible conclusions; and because one of the Mughal sovereigns was called منگو—Mangú—which name they may have read of, immediately they see the word منگوتنه—Mangútah—they at once assume that the former must be meant, and this, too, when the author in another place had stated, that Mangútah was an aged man, with dog-like eyes—[some copies have 'one-eyed'], and that he had been one of the Chingiz Khán's favourites. See "*Tabakát*," Translation, note to page 1180.

made inquiry of a party (of prisoners)<sup>22</sup> why the army of Islām marched along the bases of the mountains, for the route was long, and the way by Sarsutī and Marút (Mírat?)<sup>23</sup> was nearer? He was answered that *the numerous fissures on the banks of the river rendered the way impossible for the army.*<sup>24</sup>

The writer of the *Calcutta Review* article on the "Lost River," might have noticed, that, in a foot-note, the editor and translator says, "*The text—چر بر کنار آب را نباشد از كثرت* is far from intelligible and apparently contradictory. The royal forces are said to have marched along the banks of the river, although that route is declared to have been impracticable. The whole passage is omitted in Sir H. Elliot's MS."

The translator and editor appears to have been much puzzled, certainly, and seems to have forgotten that he took the army "across the river "Rávi," as far as Láhor, just before, because it was doubtful whether it could proceed along the banks of the "Biyáh." He has confused one river with the other; and, if the route along the left or east bank of the Biáh was supposed to be impracticable, it did not follow that there was no way along the right or west bank. As previously stated, there were other reasons for not following the course of the Biáh direct to Uqohhh, even if the route had been practicable on the other or on both sides of "the river," which referred to the Hakrá, which flowed past Marút, and not to the Biáh at all.

The "Review" writer, further says: "In the same volume, page

<sup>22</sup> There is not a word about "prisoners" in the original.

<sup>23</sup> Here it will be seen, that, in two places where the author was perfectly right as to the names Mangútah and Marút, Mr. Dowson thought he knew better, and turned the first into "*Mangú Khán*," and the latter into "*Mírat*," and has thereby shown the extent of his historical and geographical knowledge. Mírat is just five degrees east of Marút, and, more than that, lies north-east of Dihlí, in a totally opposite direction.

<sup>24</sup> See Elliot's *Historians*, Vol. II, page 364.

<sup>25</sup> I have noticed in my "Translation," in note 3, page 812, that the word چر supposed to mean "*fissures*," is but part of the plural form of جزائر namely جزائر, part of the word being left out in the Calcutta text, signifying 'islands,' etc. Under any circumstance, چر—*jar*—does not mean either a fissure or fissures, but the Hindí چر—*char*—means, 'a bank,' 'an island.' This word is used in the Panj-áb for such shoals, banks, or islands as are found on, and near the banks of rivers after the subsidence of the annual inundations, and this local word may have been used by the people of whom Mangútah made inquiry.

See the large scale map of the Baháwal-púr territory, and some idea may be formed respecting such 'islands' or 'banks' as the author refers to, still to be seen in the ancient channel of the Hakrá or Wahindah, and also the notice of that channel which will be found farther on.

344, the same expedition is referred to, but there it is merely stated that when Sultán 'Aláu-d-dín arrived on the banks of the Biyáh, the infidels raised the siege of Uch."

From the correct version of this identical passage, as it occurs in the Persian text of the "*Tabakát-i-Násiri*," given at page 812 of my "Translation," it will be noticed, that, as usual with its author, he has not mentioned the details therein, but retained them for his account of the invasion of the Mughals, which I have given at the beginning of this article.<sup>36</sup>

What are the facts respecting this investment of Uchchh? The Dihlí forces having first crossed the Biáh, coming from Dihlí in the direction of Láhor by the direct route between the two places, Malik Ghiyás-ud-Dín, Balban, afterwards raised to the title of Ulugh Khán-i-A'zam,<sup>37</sup> who was the Sultán's chief of the staff, so to speak, or rather, the real commander, conducted the army of Hind towards the Ráwah, as it is called, as well as Ráwi, of Láhor. We also learn from the passage in the account of Ulugh Khán-i-A'zam, which has just been discussed, what determined the Mughal commander to raise the investment of Uchchh. It was not only that one of the most famous of the Mughal leaders had perished in the recent assault, and that the invaders had been repulsed in making it, as stated in the detailed account, but, on reaching the banks of the Biáh on the way from Dihlí to Láhor—I am referring to it as it flowed in its old bed, not as it and the Sutlaj flow now under the names of Hariári and Ghárah—Malik Ghiyás-ud-Dín, Balban, despatched couriers to Uchchh<sup>38</sup> with letters for the defenders, some of which were purposely allowed to fall into the ene-

<sup>36</sup> At page 1150 of my "Translation."

<sup>37</sup> Sultán Násir-ud-Dín, Mahmúd Sháh, who was set up as ruler of Dihlí in the following year, after Sultán 'Aláu-d-Dín, Mas'úd Sháh had been imprisoned, married the daughter of the Ulugh Khán-i-A'zam. After the decease of his son-in-law, who died childless, he succeeded to the throne under the title of Sultán Ghiyás-ud-Dín, Balban. He was a Turk of the Ilbari tribe, but compilers of Indian Histories and Gazetteers, and archaeological experts, turn him, like many other Turks, Tájiks, Játs, and Sayyids, into "*Patháns*," which is synonymous with Afghán, it being the vitiated Hindí equivalent of Pushtún, the name by which the people generally known as Afgháns call themselves, in their own language.

A specimen of this "*Pathán*" fallacy appears in the "*Transactions*" of the Society for November, 1889, page 226. Referring to a find of coins from the Koh-i-Júd or Salt Range, they are described as "all of one kind, viz., coins of the Pathán Sultán of Delhi, Ghatágu-d-Dín Balban." Now this very personage is no other than the Ulugh Khán-i-A'zam mentioned above, who was an Ilbari Turk, not an Afghán or "*Pathán*." If the "*Tabakát-i-Násiri*" were more studied, such great errors would not occur. It is quite time to give up Dow and Briggs' "*Ferishta*."

<sup>38</sup> See note 13, page 160.

my's hands, intimating, in somewhat exaggerated terms, the advance, and near approach, of a vast army with numerous elephants: and, in truth, it was said to have been the most formidable army that had been assembled for a very long period. Malik Ghiyās-ud-Dīn, Balban, immediately after the army had passed the Bīáh on the route to Láhōr, had also pushed forward a considerable body of cavalry towards the frontier of Sind, and this force, at least, went by the right or west bank of the Bīáh, through the Bári Do-ábah, between it and the Ráwí. On the couriers reaching Uchchh, the drums and other so-called musical instruments announced to the Mughals that the defenders were aware that succour was at hand, and that they would speedily be relieved; and what with their own recent, unsuccessful assault, and the loss of one of their famous leaders, it became clear to the Mughals that Uchchh was not to be taken as easily as they had expected.

Another important point to be considered is, that this march from Dihlí towards Láhōr and the Ráwí was a flank movement, to cover, and succour Multán<sup>29</sup> if necessary, and threaten the line of the Mughals' retreat towards the Júd Hills—the Namak-Sár or Salt Range—the route by which they had come against Uchchh.<sup>30</sup>

It will also be noticed that the Nú-in Mangútah was quite alive to this flank movement, when, on hearing of the route taken by the Musalmán forces, he said it was "time to retire," and the author adds, "lest, if they remained longer, their line of retreat should be cut off."

Another reason for the advance of the Dihlí army towards Láhōr, instead of going direct from Dihlí to Uchchh through the *now* desert waste, was, that the Bīáh and Ráwí, which did not flow then as they do now, were more easily crossed higher up at the season in question—the months of December and January<sup>31</sup>—when these operations took place,

<sup>29</sup> Multán and Uchchh, as before mentioned (see note 8, page 157, and note 12, page 159) were then situated in the same Do-abah, no great river intervening between them, but a cutting from the river Chin-áb, called the Lolí Wá'-han, flowed past the fortifications of Multán, and filled its ditch, or formed a wet ditch around it, which, in the cold season, could be filled at pleasure. There were likewise several canals about, at lesser or greater distances.

The Ab-i-Sind or Indus, at this period united with the Bīáh and its tributaries near Uchchh on the west, as confirmed by tradition mentioned in note farther on, and continued so to do down to modern times.

<sup>30</sup> The Ránah, Jas-Pál, Sīhrá or Shérá, and his Khokhar tribes, acted as the Mughal guides, for which they were severely chastised in the following year, 644 H., the first of the reign of Sulṭán Násir-ud-Dīn, Maḥmúd Sháh. See pages 678 and 815 of my "Translation."

<sup>31</sup> The Mughals raised the investment of Uchchh on the 25th of the month Shabán, about the end of January, 1246 A. D.

and lay through the most populous parts of the country, on the main route from Dihlí through the north-western provinces, where facilities for crossing this vast army were ready at hand, where supplies were abundant, and where some of the great feudatories of those parts would join the Sultán's army *en route* with their contingents.<sup>82</sup>

At this period the Bíáh flowed in its old bed past Debál-púr and the Wihat or Bihat, the Chin-áb or Chin-áo, and the Ráwah or Ráwí, having united into one stream to the north-east of Multán, flowed near it on the east side, and united with the Bíáh some twenty-eight miles to the southward of that city, and east of Uchchh, instead of west of it, as the united rivers of the Panj-áb now flow. This movement enabled the Dihlí forces to threaten the Mughal's line of retreat northwards, consequently, there would have been no road open to them except down stream or across the *Ab-i-Sind* or Indus, and these alternatives were, evidently, not approved of by Mangútah.<sup>83</sup> As stated by the author of the "*Tabakát-i-Násiri*," who was present in attendance on the Sultán and his army in his ecclesiastical capacity, as soon as the Mughal Nú-ín became aware that the army of Islám was marching down the east bank of the Ráwí (which was generally fordable) through the Bári Do-ábah, near the junction of the rivers, in order to reach Uchchh, he immediately found it necessary to retire; and, as the author of the above work<sup>84</sup> states, "The advance of the victorious army, and approach of the royal standards, becoming manifest to the accursed Mangútah, and the cavalry of the advance force approaching the frontier of Sind [below the

Even if the Dihlí forces had taken the direct route by Márút, they would still have had the Hakrá and the Bíáh below the junction of its tributaries to cross, both deep, broad, and unfordable rivers, in order to reach Uchchh, which then lay between the Sind Rúd or the Bíáh and its tributaries, and the *Ab-i-Sind* or Indus. Moreover, the Mughals before Uchchh might then have been in a position to oppose their crossing the former river.

<sup>82</sup> In crossing higher up stream, the Sultán of Dihlí merely did as Alexander the Great is said to have done before. Strabo, in his Geography (B. XV), says: "He resolved therefore to get possession of that part of India first which had been well spoken of, considering at the same time that the rivers which it was necessary to pass, and which flowed transversely through the country which he intended to attack, would be crossed with more facility near their sources. He heard also that many of the rivers united and formed one stream, and that this more frequently occurred the farther they advanced into the country, so that from want of boats it would be more difficult to traverse."

<sup>83</sup> He probably had no means of crossing the *Ab-i-Sind*, consequently he had to beat a hasty retreat up the Sind-Ságar Do-ábah, by the same route as he came down against Uchchh.

<sup>84</sup> See pages 812, and 1156.

junction of the Ráwí and other rivers with the Báh south-south-east of Multán], \* \* \* he made inquiry of some persons [natives of the country, without doubt], what might be the reason of the deviation of the army of Islám towards the skirts of the hills, because that was a longer route, while that by Sarastí and Márút was near. They replied, that, on account of the number of islands on the banks [of the river],<sup>85</sup> there might not be a road for the army of Islám."

The writer in the *Calcutta Review*, misquoting, as it will be seen, his own authority, says: "It is said in the *Tabakát-i-Nasirí* that, when Uchh was besieged by the Mughals in H. 643 (A. D. 1245), the army sent [the Sultán, 'Alá-ud-Dín, Mas'úd Sháh, commanded it in person] was unable to march by Sarsutí and Marot, in consequence of the DROUGHT on the bank of the river"! What river he does not say; but, in Elliot's "Historians," which he quotes, there is not one word about "drought," and in the author's text there is not one word to indicate that "the numerous fissures rendered the way impassable," as Mr. Dowson translated the words راه نباش—*ráh na-báshad*—which means that there might not be a road—a doubt, not a certainty. Consequently, as far as the authority of the "*Tabakát-i-Nasirí*" is concerned, there is not the least reason for supposing that either the Ráwí or the Báh had then changed their courses, or that the Hakrá had dried up.

"Marot," the writer continues, "is now in the heart of the desert, but then the high road from Dehlí to Multán passed under its walls, and followed the course of the Hakra from Sarsutí to within a few marches of Uchh. After this period, armies marching from Dehli to Multán always took the road by Abohar and Ajohdan; but the more direct way by Marot was occasionally taken by travellers for some time later."<sup>86</sup>

All this, like the "drought," is mere surmise. That there was a route by Márút is certain, but no scrap of evidence can be produced to show that armies, going from Dhlí to Multán "always" took the route by Márút, nor would the writer be able to point out any place where it is stated that the route by Márút was the "high road between Dehli and Multán," or any authority for the statement, that armies marching

<sup>85</sup> As I have before noticed, which of the rivers is not mentioned, and in coming from Dhlí by way of Márút the Hakrá would have had to be crossed, under any circumstances, unless the troops crossed the Ghag-ghar at Sarastí or near it, and after that had been crossed, the Báh and its tributaries, forming the Sind Rúd, would have to be crossed likewise.

<sup>86</sup> Yet, at page 8 of his article in the *Calcutta Review*, the writer says: "Our knowledge of the condition of this tract of country previous to the time of Sultán Firáz Sháh in the fourteenth century is very vague."

from Dihlí to Multán, "after this time *always* took the road by Abohar," or to name a single instance of an army taking that route in preference. The Márút road was taken both by bodies of troops and travellers long after, and was taken by an English traveller—Arthur Conolly—in company with a caravan of that branch of the Tarín Afgháns commonly known as the Sayyids of Pushang, as late as 1830.

As to the route being "closed at this period and after" because of the disappearance of the "western branch of the Naiwal," which "was the last of the channels connected with the Hakra which, therefore, at this time (about A. D. 1220) finally ceased to flow," the writer of the article in the "*Review*," himself says, that "a great part of the Indian Desert has undergone little change since pre-historic times," and, that "its ancient name of Marusthali (region of death) proves this." Does the "seige of Uch" belong to pre-historic times? The writer attributes the movement of the Dihlí army towards Láhor, instead of following the route by "Marot," to the drying up of the Hakra; while, in other places he says, that, "the downfall of the Sumras must have occurred between A. D. 1223," and, that that year had "been preceded by the disappearance of the Hakra river." Now the year 1220 A. D. is equivalent to the year 617 H., which commenced on the 7th of March of the above year, or twenty-six years *before* the investment of Uchóh; and the year 1223 A. D., is equivalent to 620 H., which began on the 3rd of February, or just three years *less*. This is certainly very contradictory.

"If the "Hakra river" had dried up in 1220 A. D. or in 1223, the route by "Abohar" between twenty-three and twenty-six years *after*, would have been no better than that by "Marot." Both routes would have lain through much the same description of country; for Uboh-har<sup>87</sup> was situated on one of its tributaries, and we know from Ibn Batútah that there was no want of water in that part *eighty years after the investment of Uchóh*.

Sultán Násir-ud-Dín, Kabá-jah the Turk,<sup>88</sup> who ruled over the territories of Sind and Multán, on the sudden death of Sultán Kutb-ud-Dín, I-bak-i-Shih, from the effects of the accident which befell him when playing at the game of *chaughán* at Láhor in 607 H. (1210-11 A. D.), annexed all the country east of Multán and Uchóh, as far as Tabarhindah (the old name of Bhatindah), Kuhnám, and Sarastí.<sup>89</sup> This fact

<sup>87</sup> The derivation of this name, which in error is written Abúhar generally by the Muhammadan historians, will be found farther on.

<sup>88</sup> He is one of those turned into a "Pathán" by the experts.

<sup>89</sup> Sarastí is the ancient name of Sirsá: Sursutí is the name of a river, the ancient Saraswatí.

clearly shows, that, at this period, the Kāji Wá-hah, Hakrá, or Wahindah, by which two latter names it is best known in the annals of Sind and Multán, had not ceased to flow, and that Sultán Násir-ud-Dín, Kabá-jah, annexed all the intervening territory between the banks of the Hakrá, which bounded the then dependencies of Sind and Multán on the east, up to, and including, those districts abovenamed, which its tributary, the Qhitang, bounded on the south. It is beyond question that he would not have annexed a howling wilderness or "a region of death." It has also been proved beyond all doubt, that Sultán Shams-ud-Dín, I-yal-timish, set out from Dihlí by way of Tabarhindah for Uchóhh with his forces in 625 H. (1228 A. D.) to onst Kabá-jah therefrom, and take possession of Sind and Multán, and came through this present desert tract; that the Bíáh and its tributaries, or Sind Rúd, flowed near to Uchóhh on the east at that time; for the latter's fleet was moored in front of the *qasbah* of احرارث—Ihráwat<sup>40</sup>—and that one of the Amírs of I-yal-timish, Táj-ud-Dín, Sanjar-i-Gajz-lak Khán, who commanded the advanced troops of his army, had been placed in charge of the district of Wanjh-rút on the Hakrá, a place which is known to this day, and which then gave its name to the district.<sup>41</sup> It is very evident that the Malik abovenamed would not have been placed in charge of a desert, as Wanjh-rút would have been, if the Hakrá had disappeared in either 1220 A. D. or 1223 A. D., because these events happened *five years after the last named date*, in 625 H. (1228 A. D.).

The author of the "Tabakát-i-Násirí," himself proceeded by way of Hánsí<sup>42</sup> and Abúhar [Uboh-har] to Multán on the 24th of Zi-Hijjah, 647 H. (the end of April, 1248 A. D.), four years *after* the investment of Uchóhh

<sup>40</sup> This place has disappeared, and its site is now unknown, as far as I can discover, which is not surprising, considering the vast changes which have taken place in this part.

<sup>41</sup> Perhaps it will not be forgotten, that there were a number of flourishing *maháls* or sub-districts of the Bakhar and Multán *sarkárs* of the Multán *púbah*—three of the former *sarkar* and seven of the latter—east of the present bank of the Indus and Ghárah near Uchóhh, and extending to the Hakrá, and probably beyond, of which one is Diráwar on the very bank of the Hakrá, which are still well-known. These alone paid no less than 78,01,510 *dáms* of revenue, equal to 1 *lakh* and 9,537 *ráps*, or £10,953, per annum, not including free grants, and furnished 1,370 horse-men, and 8,600 foot for militia purposes, in the reign of Akbar Bádsáh.

<sup>42</sup> He mentions why he went by Hánsí and Uboh-har. He says (page 687): "When he reached the Hánsí district [it was the fief of his patron, the Ulugh Khán], the author took possession of the village conferred upon him by Ulugh Khán, and opportunity offered to proceed to Multán by way of Abúhar; and, on Sunday, the 11th of the month, Šafar, 648 H., an interview was obtained with Malik Sher Khán-i-Sunkar on the banks of the Bíáh."



by the Mughal Nú'in, Mangútah (at which time also he accompanied the relieving army from Dihlí as already mentioned), and returned from Multán by way of the fort of Márút and Sarastí to Hánsi again, in Jamádi-ug-Šáni of the following year, about the middle of October, 1248 A. D. He had gone to Multán for the purpose of despatching forty head of Indian captives—male slaves<sup>43</sup>—to be turned into money, "to his dear sister in *Khurásán*"; and, although he set out in the hot season—the end of April—he says nothing about any "impossibility" in the route, "drought," or "fissures," nor does he mention any difficulty or obstruction whatever. Besides all this, he had an interview with Malik Sher Khán-i-Sunkar, one of the greatest Amírs and feudatories of the Dihlí kingdom, "*on the banks of the Bíáh*, after leaving Abúhar [Uboh-har], and this would have been simply impossible if the Bíáh had left its old bed and had united with the Sutlaj. Moreover, if one great river [the Hakrá] had recently dried up, or disappeared, and if another river nearly as large [the Bíáh], on the banks of which his interview with Malik Sher Khán actually took place, had abandoned its old bed to meet another [the Sutlaj], halfway, which must have also similarly abandoned its channel, so that a vast tract of territory previously populous and fruitful had been turned into a desert, can it be conceived for a moment, that, if such vast changes had really taken place he would not even have hinted at them? Besides, it would have been physically impossible for him to have held an interview on the banks of the Bíáh with Sher Khán, if any change had taken place, because, when it deserted its bed, *it ceased to be the Bíáh*. In going by this route he must have crossed both the Hakrá, and its tributaries, including the Sutlaj as well as the Bíáh, to reach Multán by Uboh-har, and the Bíáh and the Hakrá again on his return by way of Márút.

In another place (page 782), he says, he went to Multán on the occasion in question, and reached it in Rabí-ul Awwal, 648 H. (June, 1250 A. D.), a journey which few would have attempted at that season, if all the rivers had dried up; and, that two days before his arrival, Malik 'Izz-ud-Dín, Balban-i-Kashlú Khán (not Ghiyás-ud-Dín, Balban, the Uluġh Khán-i-A'zam, but a totally different person) had reached Multán from Uqobh, and was then investing it; that he, the author, remained at Multán for two months—July and August—during which time Malik Balban relinquished the investment and retired to Uqobh again; and that he himself returned to Dihlí by nearly the same route as he had come.<sup>44</sup>

<sup>43</sup> Turned into "100 beasts of burden," by Mr. Dowson, See Elliot's *Historians*, Vol. II, page 350, and "*Tabakát-i-Nasiri*," pages 686, 783, and 822.

<sup>44</sup> At page 822 of the "Translation" he says he set out from Dihlí for Multán.

At pages 787-88, under Malik Badr-ud-Dīn, Sunḡar-i-Sūfi, entitled Nuṣrat Khān, it is stated, that, "in 657 A. H. [which began on the 28th of December, 1258 A. D.] he was placed in charge of the then western frontier districts of the Dihlī kingdom, namely, the city of Tabarhindah [subsequently called Bhaṭindah], Sunām, Jhajhar, and Lak-wāl [Lakhhī-wāl],<sup>45</sup> and the frontiers as far as the ferries over the river Bīáh," which shows that the Bīáh still flowed in its old bed, and also tends to prove that the parts between the places mentioned above and the Bīáh were not then deserted by the rivers, and not reduced to a desert. Had they been so, of what use was it defending the line of a dried-up Bīáh and its "ferries" from the waterless desert side? The Mughals, or their vassals and tributaries, including Malik 'Izz-ud-Dīn, Balban-i-Kashlū Khān, were then in the possession of the tracts on, and west of, the Bīáh, consisting of the provinces of Uchchh, Multān, and Lāhor. The author adds, that, "up to the date of this book being written [his history], he [Nuṣrat Khān] is still stationed on that frontier, with ample military resources and a large army."<sup>46</sup>

In several other places in his work, the author throws considerable light on this subject. At page 723, he says, that, after he first came to Uchchh from Ghaznīn by Baniān, in Ṣafar, 625 H., he went to the camp of Malik Tāj-ud-Dīn, Sanjar-i-Gajz-lak Khān, at the time Sultān I-yaltimish was about to invest Sultān Nāsir-ud-Dīn, Kabā-jah, in that stronghold, Tāj-ud-Dīn, Sanjar, having lately been put in possession of the district of Wanj-rūt (properly, Wanjh-rūt)<sup>47</sup> of Multān. This place

in Zī-Ka'dah [the eleventh month], 647 H., by way of Hānsī and Uboh-har, right across the present desert tract. He adds: "When the rainy season set in, and the rains of compassion fell, on the 26th of Jamādī-ul-Awwal [the fifth month of the following year], he set out on his return by way of the fort of Márūt, Sarastī, and Hānsī [page 688], and reached the capital in the following month. See also note to page 823 of that work.

<sup>45</sup> Now generally known as the Lakhhī Jangal. It is described farther on.

<sup>46</sup> Malik Sher Khān-i-Sunḡar appears to have again been placed in charge of the western frontiers after his kinsman, the Ulugh Khān-i-A'zam, became Sultān. The author of the Tārīkh-i-Firūz Shāh-i (who follows the author of the Tabakāt-i-Nāsirī after a lapse of ninety-five years, however, but there is no contemporary writer between them), states, that, "Sher Khān-i-Sunḡar, who was the brother's son of Sultān Ghiyās-ud-Dīn, Balban, held charge of all the western frontier in the beginning of his reign, and held it up to the time of his own death, four or five years after. He says: 'This Sher Khān held charge of all the western frontier, Sunām, Lohowar [Lāhor], Debāl-pūr, and other fiefs exposed to the Mughal inroads. See note farther on.

<sup>47</sup> Misnamed "Beejnot," in the maps. There is another place called Wanjh-rūt, in Upper Sind, near the western channel of the Hakṛā and the old bed of the Bīáh,

is now in the midst of the desert, in the Baháwal-púr state, but, at the period referred to, it was the chief place of a district on the banks of the Hakrá, extending upwards towards Uchchh, but, chiefly, along its right or east banks. Multán had been already taken possession of by one of the Sultán's Maliks, the feudatory of Sarastí, who had marched down the Bári Do-ábah from the direction of Láhor.

The author of the "Tabakát-i-Násirí" repeatedly mentions the river Bías up to the time when his history closes, and, perhaps, it will not be amiss to state briefly what he says.

I have mentioned that Malik 'Izz-ud-Dín, Balban-i-Kashlú Khán had attempted to recover Multán from Malik Sher Khán-i-Sunkar,<sup>48</sup> when the author was there in 643 H. (1250 A. D.) The latter had, some time before, wrested Multán out of the hands of the Kárlúgh Turks, who had compelled Malik 'Izz-ud-Dín, Balban, to surrender it to them. After Malik 'Izz-ud-Dín, Balban had withdrawn from Multán, Malik Sher Khán marched against Uchchh. At this time Malik 'Izz-ud-Dín, Balban, was absent at Nág-awr, or "Nágór," and he at once hastened from thence towards Uchchh to endeavour to save it; and, thinking that Malik Sher Khán would take into consideration that they were both servants of the same sovereign, and would abandon his designs upon Uchchh, he presented himself in his camp; but Malik Sher Khán, who appears to have known that he was a traitor at heart, detained him as a prisoner until he consented to surrender the place. This he did, and had to retire to Nág-awr again. The author says that, with Uchchh given up to him, all Sind came under Malik Sher Khán's sway. Now, the route from Nág-awr to Uchchh led across the Hakrá, and through the vast tract at present chiefly desert; but Malik 'Izz-ud-Dín, Balban and his following do not appear to have had any difficulty, either in going or coming, with regard to water or forage.<sup>49</sup>

and which was included in the same district, which extended from the Bikánír border to the banks of the Hakrá, and the first named place appears to have been its chief town.

<sup>48</sup> In the "Mujmal-i-Faṣḥ-i," under the events of the year 648 H. (1250 A. D.) it is stated, that, in that same year, Sher Khán-i-Sunkar retook Multán from the Mughals, and ousted a rival Malik of the Dihlí Court, who was disaffected, and intriguing with the Mughals, from Uchchh; and that, soon after, he had himself to retire to the urdu of Mangú Káán, while his rival went to Hulákú. Multán was retaken from the Kárlúghs, who were for some time vassals of the Mughals. The "disaffected Malik," of course, refers to 'Izz-ud-Dín, Balban-i-Kashlú Khán.

The year 648 H. commenced on the 4th April, 1250 A. D.

<sup>49</sup> Nág-awr then formed an important fief and province of the Dihlí empire, which Malik 'Izz-ud-Dín, Balban-i-Kashlú Khán was allowed to hold, as well as Sind and Multán. Its dependencies adjoined those of Uchchh and Multán on the

In Shawwāl, 650 H. (January, 1253 A. D.), Sultān Nāsir-ud-Dīn, Mahmūd Shāh, set out from Dihlī with his forces in the direction of Lāhor, with the intention of marching to Multān and Uchch, in order to recover them from Malik Sher Khān, and restore them to Malik 'Izz-ud-Dīn, Balban. Malik Sher Khān was the kinsman of the Ulugh Khān-i-A'zam, and this movement against him was the first step in a plot which was then on foot, to overthrow the power of the Ulugh Khān-i-A'zam, and remove him from the court. The forces marched from Dihlī by Kaiṭhal, because the feudatories of Budā'ūn, Bhīanah, and other parts, were to join with their contingents. The troops reached the banks of the Bīāh, but, as the conspirators had succeeded in getting the Ulugh Khān-i-A'zam banished to his fiefs of Hānsī and the Siwālīkh territory, the Sultān, who was a mere tool in their hands, marched back with them to Dihlī in the first month of the following year.

Towards the close of that year the Sultān again put his forces in motion for the purpose of securing Uchch and Multān. On reaching the banks of the Bīāh, a force was despatched towards Tabarhindah, another of Malik Sher Khān's fiefs; but he, leaving those places in the hands of his dependents, had retired towards Turkistān, to proceed to the presence of the Great Kā'ān, Mangū Khān; and those provinces were taken from Malik Sher Khān's dependents, and entrusted to the charge of Malik Arsalān Khān, Sanjar-i-Chast; and the Sultān again retired from the banks of the Bīāh, beyond which the forces did not move, and returned to Dihlī.

About 653 A. H., the traitor, Malik 'Izz-ud-Dīn, Balban, (1255 A. D.), was again placed in charge of Uchch and Multān, apparently,

west. Can any one imagine it would have been possible or desirable to have held Multān, Uchch, and Nág-awr, with a howling waterless desert between, and those districts also half a desert, with the principal river dried up, and two others merged into one, and thus rendering another vast tract desolate?

Nág-awr, at the period in question, was generally held by a separate feudatory, but 'Izz-ud-Dīn, Balban, possessed great interest with the rulers of the Shamsī dynasty, to whom he was related by marriage, having espoused a lady of the family of Sultān I-yal-timīsh. He rebelled several times, and yet his conduct was passed over, and he was again and again restored to favour, as may be seen from the "Tabakāt-i-Nāsiri."

In Akbar Bādshāh's reign, Nág-awr was one of the two western *sarkārs* of the Ajmīr *subāh*, and Bikānīr, of which Jasal-mīr was only a *maḥdāl* or sub-district, was another *sarkār* of Ajmīr. Even in that day, when some of the rivers had greatly changed, and a great deal of desert intervened between Nág-awr and the Multān *subāh*, it contained thirty-one *maḥdāls*, and yielded a revenue of 40,389,830 *damas*, equal to 1,009,748 *rāpis*, or upwards of ten *lakhs*. It is now a dependency of Jodhpūr in the territory of Māy-wār.

to counteract the designs of Malik Sher Khán in going to the presence of Mangú Ká'an, the supreme ruler of the Mughal empire. With the assistance of Malik Shams-ud-Dín, Muḥammad, the Kurat, who held the fief of Hirát, and other parts adjacent, as a vassal of the Mughals—and heavy was their yoke—and through him, he tendered allegiance to Hulákú Khán,<sup>60</sup> then in I-ráu-Zamín on the part of his brother Mangú Ká'an, and requested that a Shaḥnah or Commissioner should be sent to Uchohh. This was done, and the Nú-in, Sálí, or Sálín, also written Sári,<sup>61</sup> was sent thither at the head of a body of Mughal troops in 654 A. H. (1256 A. D.).

In 655 H. (1257 A. D.)<sup>62</sup> Malik 'Izz-ud-Dín, Balban-i-Kashlú Khán, who, with the troops of Uchohh and Multán,<sup>63</sup> was then on the banks of the Báh, advanced up the *do-ábah* in order to effect a junction with other disaffected Malikhs of the Dihlí kingdom.<sup>64</sup> Having united, they pushed on to Manṣúr-púr, Kuhrám, and Samánah, their object being to seize upon Dihlí if they could.<sup>65</sup> The Ulugh Khán-i-A'zam, who had again regained the greatest power in the state, moved against them at

<sup>60</sup> See preceding note, and "Tabakát-i-Násirí," pages 786 and 800.

<sup>61</sup> In this word, as in many others, the letters 'r' and 'l' are interchangeable.

<sup>62</sup> According to some other writers, in the preceding year.

<sup>63</sup> The reason why Malik 'Izz-ud-Dín, Balban-i-Kashlú Khán was able to hold these places, although at the same time in open rebellion against his sovereign, the Sultán of Dihlí, was, because Uchohh and Multán, and their dependencies, chiefly, lay west of the Báh and Hakrá, and between the latter and the Ab-i-Sind or Indus, which then flowed much nearer to Multán, and farther west and beyond the Ráwí and Chin-áb. Both strongholds, likewise, lay in the same *do-ábah* or delta, the Sind-Ságar Do-ábah, and this rendered them liable to attack from the Mughals coming downwards from the direction of the Koh-i-Júd, Namak-Sár, or Salt Range, in the same *do-ábah*, which was in the possession of the Mughals. The fact that Malik Hasan, the Kárlugh, evacuated Multán immediately on the Mughals approaching the banks of the Ab-i-Sind to attack Uchohh in 643 H., and retired precipitately into Sind, to Síw-istán and the sea coast, confirms this. To do so, he did not take boat, on the Ab-i-Sind, or he might have been captured, but he embarked on the Báh or Sind Rúd, below the confluence of the three other rivers of the Panj-áb with it, and from it got into the Hakrá or Wahindah, and by it reached the neighbourhood of Bakhar, and subsequently Lower Sind.

When Abú-l-Faẓl wrote, Multán was in the Bári Do-ábah, and Uchohh in the district known as Berún-i-Panj-Nad, or Extra Panj-Ab or Panch Nad, that is, lying on either side of the united five rivers below their junction.

<sup>64</sup> Including Malik Kntluḡ Khán, who had married the mother of Sultán Násir-ud-Dín, Maḥmúd Sháh, who had rebelled against that Sultán in 653 H. (1255 A. D.), and coined money in his own name, hence he is not allowed to appear in the list of the Sultán's Malikhs. He, too, was a Turk, not a "Pathán." See "Tabakát-i-Násirí" pages 673 and 703. Also the Society's "Transactions," for 1889, page 226.

<sup>65</sup> See "Tabakát-i-Násirí," page 785.

the head of the Sultān's forces. They managed, however, to give him the slip when within ten *kuroh* of them; for, having fellow traitors within the walls of the capital, who offered to open the gates to them, they made a forced march of one hundred *kuroh* in the space of two days and a *haft*, and reached it on the evening of the Thursday. The Ulugh Khān-i-A'zam had, in the meantime, received intimation of these doings, and he set out in pursuit of them. In the interim the traitors within had been secured; and Malik 'Izz-ud-Dīn, Balban, and his confederates found the walls manned and gates closed ready for a vigorous defence when they perambulated the place on the evening in question. On the Friday morning, the Sultān's forces under the Ulugh Khān-i-A'zam having appeared upon the scene, the insurgents took to flight; and Malik 'Izz-ud-Dīn, Balban, being deserted by the troops of Uchch and Multān in their precipitate flight, was left with only about 200 or 300 followers. He, however, succeeded in effecting his escape. This was in Jamādī-ul-Akhir of the year above mentioned (July, 1257 A. D.).

At this time, the Nū-in Sālī or Sālīn or Sārī, having entered the territory east of the Ab-i-Sind or Indus, reached Uchch, and Malik 'Izz-ud-Dīn, Balban, had to join his camp. After this the Mughal leader despatched the Kurāt Malik, Shams-ud-Dīn, Muḥammad, who had to accompany him on this expedition whether he liked it or not, to occupy Multān;<sup>56</sup> and the Shaikh of Shaikhs, Bahā-ul-Haḡḡ wa-d-Dīn, Zakariyā, who appears, in the absence of a settled government, to have been the chief authority there, or, at least, the person possessing the most influence, had to pay down 100,000 *dīnārs* to save the place from being sacked. The fortifications are said to have been dismantled by Sālī's command, and a Turk *mamlūk* or slave of Malik Shams-ud-Dīn, Muḥammad, the Tājīk Kurat feudatory of Hirāt and Ghūr, Qhingiz Khān, by name, was made Hākim of Multān.<sup>57</sup>

Both Malik Sher Khān-i-Sunkar, and Malik Jalāl-ud-Dīn, Mas'ūd Shāh, brother of Sultān Nāṣir-ud-Dīn, Maḥmūd Shāh, ruler of Dihlī,

<sup>56</sup> Malik 'Izz-ud-Dīn, Balban, was probably ashamed to accompany those infidels thither to the presence of the Shaikh, therefore, the Tājīk Kurat Malik of Hirāt and Ghūr was made the means of communication.

<sup>57</sup> I hope this Qhingiz Khān will not be mistaken by the archæological experts for Timur-chī, the Mughal, the Chingiz or Great Khān, because history states that he did not coin money; while the coins, if they may be so called, of his immediate successors were *balights* or ingots. Many of those petty Musalmān rulers, who were reduced to vassalage by the Mughals, like Malik Hasan, the Kārlūgh, and Shams-ud-Dīn, Muḥammad, the Kurat, had to put the names of these "infidels" on their coins. See Thomas's "Pathān Kings of Dēhlī," pages 91—98. Neither Hasan, nor his son, Nāṣir-ud-Dīn, Muḥammad were very "powerful monarchs." See also "Tabaqāt-i-Nāṣirī," Translation, pages 781, 859—863, and 1128—1132 for an account of them.

who had gone to the presence of Mangú Ká'an, and had been honourably received, were also permitted to return; and the latter was allowed to hold the province of Láhor, independent of Dihlí, as a vassal of the Mughals, but he did not long retain it.

It is stated in another history<sup>58</sup>, that, after settling the affairs of Uchch and Multán, Sálí marched towards Láhor, which was then in the possession of Kuret Khán, or Khwán as it is written in the original, and that Sálí entered into an accommodation with this person, on the payment of 30,000 *dinárs*, 30 *khurwárs* of soft fabrics, and 100 captives; and that, after this, the Kurat Malik of Hirát and Ghúr, Shams-ud-Dín, Muḥammad, who, as the vassal of the Mughals, had to accompany the Nú-in with his contingent and was probably quite weary of acting against his co-religionists on the side of the Mughal infidels, left the Nú-in, Sálí, and retired towards Ghúr.

This person, Kuret Khán, who was in possession of Láhor, does not appear, however, to have been a feudatory of the Dihli kingdom;<sup>59</sup> and the city of Láhor was in ruins, or in a very ruinous state, it having been sacked and depopulated and destroyed by the Mughals in 639 H. (1241-42 A. D.). After that time, the ruins were occupied by the Khokhars, a powerful Jaṭ tribe. These people have always been mistaken for Gakhars (by those who knew no difference between them), and the Gakhars for Khokhars.

A great army was assembled at the capital for the purpose of moving against the Mughal invaders and the traitor, Malik 'Izz-ud-Dín, Balban, but serious disturbances broke out in the hill tracts of Mewát and parts adjacent, that had first to be quelled. Respecting this, the author of the "*Ṭabaḳát-i-Náṣirí*" says, at page 850: "Nevertheless, it was impossible to chastize that sedition by reason of anxiety consequent on the appearance of the Mughal army, which continued to harass the frontier tracts of the dominions of Islám, namely, the territory of Sind, Láhor, and the line of the *Bíáh*;<sup>60</sup> until, at this period, emissaries of Khurásán, coming from the side of 'Irák, from Huláu [or Hulákú], the Mughal, had arrived in the neighbourhood of the capital."

These emissaries had not come on Hulákú's part, but respecting a matrimonial alliance mentioned at page 859 of the "*Ṭabaḳát-i-Náṣirí*." Malik Náṣir-ud-Dín, Muḥammad, who then ruled over the *khittah* of

<sup>58</sup> The *Mujmal-i-Faṣih-i-*"

<sup>59</sup> There is a Malik named 'Izz-ud-Dín, Sanjar-i-Kuret Khán, among the feudatories of Dihlí, but he had never been in charge of Láhor according to the "*Ṭabaḳát-i-Náṣirí*." See page 756.

<sup>60</sup> Had the *Bíáh* been dry, they could easily have passed the frontier, but it was an unfordable river in the direction here referred to.

Banián in the Koh-i-Júd,<sup>61</sup> was desirous of giving a daughter of his in marriage to the son of the Ulugh Khán-i-A'zam, and an agent had been sent to him by the Ulugh Khán-i-A'zam agreeing to his request. As Malik Násir-ud-Din, Muhammad, was a vassal of the Mughals, at that time, and as Hulákú Khán, the ruler of I-rán Zamín on behalf of his brother, the Great Ká'án, Mangú, was therefore the Malik's immediate superior, the Malik had deemed it necessary to send the agent of the Ulugh Khán-i-A'zam to Hulákú Khán to obtain his sanction for the proposed alliance. It was this Kárlúgh emissary who had arrived along with the agent of the Ulugh Khán at this juncture, and with him had come a Mughal Sháhnaḥ, or Commissioner, resident in Malik Násir-ud-Din, Muhammad's territory, probably to spy out the nakedness of the land. Advantage was taken of the arrival of these emissaries, who were detained for a time at some distance from the capital.<sup>62</sup> The Ulugh Khán-i-A'zam set out at the head of the troops,<sup>63</sup> and making forced marches, suddenly and unexpectedly entered the hill tracts of Mewát, and attacked the rebels with vigour and effect. The rebellion was crushed, the rebels severely punished, and the forces returned to Dihlí. The Ulugh Khán-i-A'zam advised the Sultán to give these emissaries a public reception; and so they were conducted with great pomp and parade to the Sultán's presence, and 200,000 footmen well armed, and 50,000 cavalry fully equipped in defensive armour, besides numerous war elephants, were assembled for them to behold and report on when they returned into Khurásán. This stroke of policy had the desired effect; and the author says: "Huláu [Hulákú] sent orders to the Mughal forces under the standard of Sári [Sáli], the Nú-ín, saying: 'If the hoof of a horse of your troops shall have entered the dominions of the Sultán,<sup>64</sup> the command unto you is this, that all four feet of such

<sup>61</sup> He was the son of the late Malik, Saif-ud-Dín, Ḥasan, the Kárlúgh, who had possessed himself of Multán shortly before the Mughals invested Uchchh in 643 H.

<sup>62</sup> At a place called Bárútah. See "Translation," page 851, note 8.

<sup>63</sup> The Ulugh Khán-i-A'zam had a body of 3,000 Afgháns, horse and foot, along with him in this expedition, the first time they are mentioned by a contemporary historian as in the service of any of the feudatories of the Dihlí kingdom. They were only now become sufficiently numerous to take service under the Muhammadan nobles of the Dihlí state. The territories north, west, and south of their mountain home—I am referring to "*the Afghánistán*," as described in my "*Notes*" on those parts, not to the Afghán state—were either in the possession of the Mughals, who were infidels, or their vassals, who groaned under their yoke, like Násir-ud-Dín, the Kárlúgh, above referred to.

<sup>64</sup> This, of course, only refers to the country east of the Báh, for the Mughals or their vassals were in possession of all west of that river at the period in question, and had been for some time, a fact which Indian history compilers (up to date), do not appear to have been cognizant of.



horse be lopped off.' Such like security did the Most High God miraculously vouchsafe unto the kingdom of Hindústán through the felicity attending the rectitude of the Ulugh-Khání counsels."

All these facts show, that, at the period in question, the Bíáh still flowed in its old bed, and that the Sutlaj river had not united with it. The writer of the article on the "Lost River" in the *Calcutta Review*, however, again quoting the "*Tabakát-i-Násiri*" from Elliot's "*Historians*," in reference to the investment of Uch<sup>h</sup>, says, that, "when he [Sultán 'Alá-ud-Dín, Mas'úd Sháh] arrived on the banks of the Biyáh the infidels raised the siege of Uchh," and that, "here the allusion is to the united streams. The Satlej is not mentioned although the writer was with the army, that river having become merged into the Biyáh."<sup>65</sup> Here again the "*Tabakát-i-Násiri*" is not correctly quoted, and the writer contradicts what he mentioned before from that work. It was only *after* the Dihlí troops had crossed the Bíáh, and moved towards the Ráwah or Ráwí of Láhor, and were marching down the left or east bank of the latter river, in the Bári Do-ábah, between that river and the Bíáh, and the troops were approaching Uch<sup>h</sup> from the northwards, that the Mughals, who had been repulsed in a recent assault, in which they had lost one of their famous leaders, finding their line of retreat threatened, raised the investment and "retired in three divisions." In no instance throughout the "*Tabakát-i-Násiri*" is such a river as the Sutlaj referred to; and I totally fail to see what proof the writer of the article has to show that the author "makes allusion to the united streams," when no such river as the Sutlaj is mentioned in his work,<sup>66</sup> nor in any history of that period.

<sup>65</sup> Mr. R. D. Oldham, too, in his recent paper previously alluded to, appears to have been unaware that the Bíáh flowed near to Multán at this period, or at least he does not refer to it as if he had been aware of the fact; and at this period no Hariárá or Ghárah, miscalled the Sutlaj, existed. The Sutlaj was then a tributary of the Hakra, and flowed much farther to the east. See note 67.

<sup>66</sup> What "*we* call it now" is no criterion of its correctness; and the writer in the *Calcutta Review* (page 11) himself says, that, "The modern term Satlej is rarely if ever used, except by those who have been brought into contact with Europeans." The "*modern term*," too, is at least as *old* as the A'in-i-Akbarí.

It will perhaps be well to state, to make the subject clear, that, as long as the Sutlaj or Shattluj flowed in its own separate bed, that is, before it and the Bíáh both left their respective channels and united into one river, the Sutlaj was a tributary of the Hakra or Wahindah. After the junction of the two rivers for a time, they both lost their old names, but, having again soon after separated, the Sutlaj returning to its old channel, they flowed apart for about one hundred *kuroh*, equal to about one hundred and seventy-five miles, and again took their old names of Bíáh and Sutlaj. After this, in the last century only, they again united, and lost their old names once more, and from that time have flowed in one channel, both having deserted their

When the *Bíáh* and *Sutlaj* finally united their waters, it was not that the *Sutlaj* flowed in the bed of the *Bíáh*, but both left their old beds and united midway, as their deserted channels remain to show. Moreover, after their junction, both rivers lost their names, and thenceforward they were known as the *Haríarí*, *Nílí*, or *Gháhrah*.<sup>67</sup> If the *Bíáh* had left its old bed, and had moved from thirty-five to forty miles further eastwards, thus still more reducing the *Dihlí* territory, the author would certainly have mentioned such a fact, but, as the *Sutlaj* did not then exist in that part, being then a tributary of the *Hakrá*, it is by no means strange that it is never mentioned in his work. The author does not mention the *Hakrá*, nor the *Qhitáng*, nor the *Qhin-áb*, nor the *Ghaghghar*, but that, too, is no proof that they did not exist, for we know that they did.

Malik 'Izz-ud-Dín, Balban's march upwards along the banks of the *Bíáh* in 655 H., is also considered a proof that the two rivers, the "*Biyáh*," and the "*Satlej*," had united, or rather that the "*Satlej* had merged into the *Biyáh*;" but I have already mentioned, at page 174, why Malik 'Izz-ud-Dín, Balban, took the route in question. The extracts I have given from the "*Tabakát-i-Násirí*" clearly show, that, up to the period its author wrote, namely, up to 658 H. (1259 A. D.), the *Bíáh* had not left its old bed; and, furthermore, it is certain that it still continued to flow in its old bed for more than one hundred and fifty-seven years after the investment of *Uchohh* by the *Mughals*, up to the time of the invasion of India by *Amír Tímúr*, the *Gúrgán*, in 801 H. (1397-98 A. D.), as I shall presently show; and, moreover, there are people still living,<sup>68</sup>

ancient beds. The names of the river while united were *Maohhú-Wáh*, *Haríarí*, *Dand*, *Núrní*, *Nílí*, *Ghallú-Gháhrah*, and *Gháhrah*, the two last being only applied to the lower part of the stream, after the final junction. See the account of the *Sutlaj* farther on.

About the only writer who describes the *Haríarí* or *Gháhrah* correctly and in a few words is *Elphinstone*, who says (Vol. 1, p. 32), respecting *Baháwalpúr*: "The river winds much at this place, and is very muddy, but the water, when cleared, is excellent. It is here called the *Gharra*, and is formed by the joint streams of the *Hyphasis* or *Beyah*, and *Hysudrus* or *Sutledge*."

<sup>67</sup> *Abú-l-Faḡl*, in the *A'in-i-Akbarí*, calls it *Gháhrah*, *Haríarí*, or *Núrní*. The *Dand* or *Dandah* refers to a minor branch described further on, but not to be confounded with the high bank of the old channel of the *Sutlaj* further east, which in the dialect of the people of that part is called *dandah*.

<sup>68</sup> There lately died in the village of *Dhokí* in the *Montgomery* (the old "*Goo-garia*") district, an old *Jaṭ* named *Bagh Mall*, who, according to a *Láhor* paper, which gave an account of him a little while before, had reached the advanced age of 118 years, having been born in A. D. 1770. The account says:—"Though so old, *Bagh Mall* can still walk about, and goes as far as the village well, about 100 yards or so, and also to the village *dharmsala* every day. His vision is a good deal impaired, and

who remember the time when the *Bíáh* first deserted its ancient bed, and the *Sutlaj* finally left its last independent channel, now known to the people as the "Great *Daṇḍah*," and the two united and formed the *Haríári*, *Nílí*, or *Gháhrah* as they now flow.

I certainly fail to see that because "the Tartar chief, *Kadar*" [a *Mughal*, I presume, and *Mughals* are not *Tartars*, although both are branches of the *Turks*] "came with an army from the *Jud* mountain in 695 A. H (A. D. 1296) and crossed the *Jhelam*, *Beyah*, and *Satladar* (*Satlej*)" [which the writer just before said had "merged into the *Biyáh*" fifty-two years previously, when the army marched from *Dihlí* to relieve *Uchchh*] and was "defeated near *Jhalandar*," therefore "he must have crossed them above their junction" [the two latter, I presume, are meant, but *three* are named], The "must" here is merely to support the previous theory that the *Sutlaj* had united with the *Bíáh* and flowed in the latter's bed, which it never did do. This "Tartar chief" could not have crossed the *Sutlaj* at all, to have been defeated near *Jalhandar*,<sup>69</sup> even after the *Bíáh* and *Sutlaj* had united into one stream and ran as it runs to this day, because, if he had crossed the *Sutlaj* from the west to the east bank, he would have passed out of the *Jalhandar Do-ábah*, and have left *Jalhandar* some twenty-eight miles to the northward. That *Do-ábah* refers to the tract of country lying between the *Bíáh* and the *Sutlaj* (in whatever direction they flowed, and may flow), which latter river now bounds it on the south. To reach that *Do-ábah* from the *Koh-i-Júd*, *Namak-Sár*, or *Salt Range*, the *Qhín-áb* and the *Ráwí* would have to be crossed as well as the "*Jhelam*" and "*Beyah*," but not the "*Satladar* (*Satlej*)"; and if it is a proof, because the *Sutlaj* is "not mentioned" by the author of the "*Ṭabakát-i-Násirí*" on the occasion of the investment of *Uchchh*, that it must have "merged into the *Biyáh*," we might just as well say that it is a proof that the *Qhín-áb* and *Ráwí* had merged into the *Jhilam*, or some other river,

he is rather deaf, but otherwise seems in wonderful health for his wonderful age. \* \* \* His descendants number eighty persons—children, grandchildren, and great-grand children,—who take great care of him. The old man's memory is, of course, somewhat gone; but as a proof of his age he says he can remember the drying up of the *Bias* [*Bíáh*], which is supposed to have occurred some hundred years ago" "*Allen's Indian Mail*," January 21st, 1889.

When *Wilford* wrote his remarkable "*Essays*," showing that he was far in advance of his time, and *Rennell* published his "*Memoir on a Map of Hindoostan*," in 1788, the *Bíáh* and *Sutlaj* had not yet united and formed the *Haríári*, *Nílí*, or *Gháhrah*, but they did so very shortly after.

<sup>69</sup> *Abú-l-Faṣl* always writes it *Jálandhar*. The Survey account I shall presently refer to has the name as above. The correct name of this *do-ábah* is *Bist-Jalhandar*, and it was also known as *Sehír-Wál*.

since they are not mentioned in the case of this "Tartar" invasion, which was one of the numerous inroads of the Mughals into the Panj-áb territory.

I may mention here, that, when the Mirzá, Pír Muḥammad, son of Jahán-gír, son of Amír Tímúr, in Rabí-ul-Awwal, 800 H. (December, 1397 A. D.), crossed the Áb-i-Sind or Indus and invested Uchchh as the Nú-ín, Mangútah had done in 643 H., reinforcements under Táj-ud-Dín, Muḥammad, the Ná'ib of Sárang Khán, who was then governor of the provinces of Láhor and Multán, were despatched to the succour of Uchchh. Pír Muḥammad, obtaining information of this, raised the investment of that place, and marched to meet Táj-ud-Dín, Muḥammad, whom he fell upon on the banks of the Bíáh, and overthrew him. He, with difficulty, re-crossed the river, but, in so doing, lost a number of his men, who, in their hurry to escape, threw themselves into the Bíáh and were drowned. Having effected the passage, Táj-ud-Dín Muḥammad retired precipitately towards Multán, which he succeeded in reaching, but was closely followed by the Mughals, who invested him therein. To effect these movements, if the Bíáh and Sutlaj had united, both pursuer and pursued would have had to cross the Ghárah, but they had not yet united. The Ráwí still flowed east of Multán and united with the Bíáh, which still flowed in its own bed; but, the Qhin-áb, having separated from the Ráwí and Bíáh, and altered its course more towards the west, passed Multán on the west instead of the east, and thus Multán was in the Rachan-áb Do-ábah, and Uchchh in the Bist-Jalhandar, instead of the Sind Ságar, while at present, consequent on other changes in the courses of the rivers, Multán is in the Bári Do-ábah, and Uchchh has long since been shut out of the Do-ábahs altogether.

So much for the Bíáh and Sutlaj having merged into one *before* the investment of Uchchh in 643 H.

The old bed of the Hakrá can be traced much farther south-west than "Kururwalla, in Lat. 29°, 53', Long. 73°, 53'." It can be traced down to the sea coast of Sind, as I have here traced it.

The writer of the article in the "Calcutta Review" has also stated, that the upper part of the Hakrá "is called *Sotra*, which is probably a corruption of *Satroda* or *Satruda*, the old name of the Satlej<sup>70</sup> [in the "Tartar invasion" he called it the "*Satladar*"]. "Hakrá," he continues, appears to be the modified form of *Sagara*, the letter S being pronounced H in Rajputana and Sindh." It might have been added, that this inveterate propensity likewise prevails in Káthiáwár.<sup>71</sup> But,

<sup>70</sup> Only the Sutlaj was *not* the Hakrá, but merely one of its tributaries. See the notice of the Hakrá farther on.

<sup>71</sup> Lieut. A. H. E. Boileau, of the Hon'ble Company's Bengal Engineers, in his

how comes it that the 'k' in *Hakrá* is changed into 'g'? The name *Ságarah* (or *Shágarah* in some MSS.) is as old as the time when *Al-Mas'údí* wrote, as will appear farther on.<sup>73</sup>

He also says that "the *Satlaj* when it abandoned the western *Naiwal* [*Ná'e Wáli*, the eastern and western, are names of old channels in which, in ancient times, the *Sutlaj* flowed] entered the valley of the *Biyas*. \* \* \* At this time [the siege of *Uchch* in 643 H.] therefore, took place the first junction between the rivers, and their combined streams were henceforth known as the *Boyah*." What is the difference? and what name may it have previously borne if it was only henceforth called the "*Boyah*"?

This, however, is nothing less than a contradiction on the writer's part of his own previous and succeeding statements. He must have meant to say, or ought to have said, that, *after* their junction, whenever and wherever that might have happened, they lost their respective names, and were henceforth called *Haríárí*, *Nílí*, or *Ghára*; and, in any case, the *Sutlaj* never entered the valley of the *Bíáh*, nor did the *Bíáh* enter the valley of the *Sutlaj*, because the tracts through which the *Bíáh* flows after leaving the hills, and a goodly portion of which I have myself traversed, and that through which the united streams now flow, is perfectly flat from their point of junction. The right or western bank of the old bed of the *Bíáh*, like that of other rivers of this part, is much the highest, and forms the eastern side of the great central plateau separating the valley in which it flowed from the valley of the *Ráwí*, and forms the greater part of the *Ganjí Báf*, described in the account of the two rivers farther on; and beyond this high bank the *Bíáh* could not possibly pass, unless it had risen some forty feet to do so. The old bed of the latter river lies some thirty miles on the average farther west than the united stream, the *Haríárí*, *Nílí*, or *Ghára*. The *Sutlaj* and *Bíáh* met half way, so to speak, both leaving their old beds, and formed a new one for a short distance, but they soon separated, and did not unite again until low down in the south-west part of the *Multán* district, as will be described in its proper

"Personal Narrative" says, that "the *Bhatee* borderers substitute a guttural *kh* in place of *s*, as "*bukhtee*" for "*bustee*;" *o* for *a* [for "*ah*" as a final letter, as in *Sind*]; and *sh* for *s*," etc. To-day, on the other hand (as in the extract above, which is really from him), says the natives of these parts cannot pronounce the sibilant, so that '*s*' is commuted into '*h*'."

<sup>73</sup> *Ságar* is the Sanskrit for 'ocean,' 'sea,' etc., and it is still known as the *Sind-Ságar* near the sea coast. Tod calls it the "*Sankra*," which is another form of the name; and it is called the *Sankrah* in the treaty entered into by *Nádir Sháh*, and *Muhammad Sháh*, *Bádsháh* of *Dihli*, when ceding all the territory west of it to the Persians. The substance of that treaty is given farther on.

place. It was only towards the close of the last century that they again united, again lost their respective names, formed a new river and a fresh bed, and commenced to flow as at present.

The writer also states that, "the application of the name Satlej to the stream below its confluence is a modern innovation, and is not to be found in old writings, Hindú or Mohammedan." In this he is perfectly correct. It was stated by Abú-l-Faẓl in the *A'in-i-Akbari* nearly three centuries ago, that, "after the junction of the two rivers *they both lose their names*, and the united streams are known as the *Ḍaṇḍ*, or *Ḍaṇḍah*, *Hariári*, and *Núrní*, and lower down, as the *Gháraḥ* or *Ghára* (both modes of writing being correct)." Then quoting Tod, the Review writer says, "Tod, in his '*Annals of Rajast'han*,' says, that the Bhatti traditions say the *Garrah* is always called *Beah*. To this day, the river below Fírozpur is known to the boatmen as *Biyáh* [sic] or *Garrah*. The modern term Satlej is rarely if ever used, except by those who have been brought into contact with Europeans."<sup>73</sup>

I may add that the boatmen never call it "Satlej," nor Sutlaj below the confluence of the two rivers, and that, more correctly speaking, we might say that the Sutlaj unites with the *Bíáh*, instead of the *Bíáh* uniting with the Sutlaj. The Sutlaj was the interloper, and its entering the channel of the *Bíáh* at Loh or Loh-Wál temporarily, caused the *Bíáh* to desert its ancient channel altogether.

Before closing these remarks upon the article in the "Calcutta Review," I would point out what appears so very contradictory in the writer's statements. At page 10 he says, that, "when the Sultán ('Alá-ud-Dín, Mas'úd *Sháh*), reached the banks of the *Beyah*, the Mughals raised the siege of Uchh," and that "the allusion is to the united streams, the Satlej having become merged into the *Beyah*." Now, after stating that "the Satlej is an interloper, and the *Beyáh* the original stream," which last statement is undoubtedly correct, he says that "the Satlej is no other than the *Hakra* or *Naewal*"; that "the *Abohar*" was the last which deserted its bed in the first half of the thirteenth century; that, although they met at *Hariki Pattan* [*Harí ke Paṭan*—The Ferry of *Harí*] in 1593, they have only flowed in the same bed since

<sup>73</sup> Tod in his "*Rajast'han*," says, note page 262, Vol II, that "The *Garah* is invariably called the *Behah* in the chronicle [which he is supposed to be quoting]. *Gharah*, or *Gharra*, is so called, in all probability, from the mud (*gar*) suspended in its waters. The *Gharah* is composed of the waters of the *Behah* and *Sutlej*."

*Gará* (گارا), not "*gar*" is mud in Hindí, but kneaded and prepared for pottery or building, but the name of the river is *Ghallú-Gháraḥ* (گھلو گھارہ) and *Gháraḥ*. See notes 66 and 67.

1796"; and that "since then the lands on the banks of the old *Biyās* became waste."<sup>74</sup>

If these last statements are correct, then the former one, that, when the Mughals raised the siege of *Uchchh* in 1245 A. D., "*the allusion is to the united streams, the SATLEJ having become merged into the Biyāh*," is incorrect; as must likewise be the statements, that, after this siege of *Uchchh*, "*armies marching from Dehli to Multān were obliged to abandon the direct route by Marot, in consequence of the disappearance of the Hakra*," which we are now told "*is no other than the SATLEJ or Naewal*;" and that afterwards, they "*always took the road by Abohar and Ajodhan*," must be equally wrong, since the writer adds, that "*the*

<sup>74</sup> Mirzá Sháh Husain, the Arghūn Mughal ruler of Sind, after gaining possession of *Uchchh* in 931 H. (1524-25 A. D.), and destroying its defences, marched from thence towards Multān, and reached the banks of the Ghárah; and the Langáh Jāṭs of Multān took post on the banks, and there awaited his attack.

This clearly shows that the Biáh and Satlaj had then, in Mirzá Sháh Husain's day, already united above Firúz-púr, and become the Hariári, Dandah, or Núrni, as afterwards described by Abú-l-Faẓl. But they soon separated again, and each resumed its former name, the only difference being that an intermediate, but very minor branch remained, called the Dandah. After flowing apart for about one hundred *kuroh*, they again united and formed the Ghárah, as described in note 66, page 178, and in the notice of the rivers farther on; for, until they again united in the south-western part of the then Multān territory of the Langáh Jāṭs, there was no Ghárah. The latter, however, was not then as it subsequently became, and now is, because it then passed some miles east of the site on which Baháwal-púr now stands, and also east of *Uchchh*, to unite with the *Ab-i-Sind*, or Indus.

Mirzá Sháh Husain, moreover, is stated to have made peace with the Langáh ruler of Multān, on the stipulation, that the Ghárah, in future, should form the boundary between the Multān territory and Sind, and that all to the southwards of the Ghárah should belong to Sind. The point where the two rivers again united after flowing apart, will be found in the account of Ibráhīm Husain Mirzá's capture farther on.

It is further mentioned that Mirzá Sháh Husain attacked the fortress of Dir-áwar (since become the chief stronghold of the Dá'úd-putrah chiefs of Baháwal-púr), which through 'i' and 'r' being interchangeable in these parts, is also called at times Dil-áwar and Dir-áwal, and that he had to take a month's supply of grain and water sufficient for his forces along with him, because it was "situated in a desert tract, so that even the birds of the air were afraid to glance at it." This place is close to the west bank of the deserted Hakrá or Wahindah, about fifty miles south-south-west of Baháwal-púr. This statement also shows that the Satlaj had then ceased to be a tributary of the Hakrá as it had hitherto been, and that by the Satlaj uniting with the Biáh, both rivers, under the new names of Ghárah, etc., had become tributaries of the *Ab-i-Sind* or Indus.

The above information I may mention is from Mfr Ma'gúm of Bakhar, the historian of Sind, who wrote as far back as near the close of the reign of Akbar Bádgsháh.

*western branch of the Naswal was the LAST of the channels connected with the Hakra which, at this time (about 1220 A. D.) finally ceased to flow"; for the investment of Uchchh occurred twenty-five years after this last channel according to that statement, finally ceased to flow !<sup>76</sup>*

My geographical and historical information concerning the Bīáh, the Sutlaj, and the ancient Hakrá or Wahindah, and its tributaries, and concerning the other rivers of the Panj-áb, differs considerably from that contained in the article in the "Calcutta Review," but it agrees generally as to the "Lost River" itself; and, in justice to the writer, it must be allowed that he was one of the first,<sup>76</sup> in the present day, to call prominent attention to the fact that the Hakrá did once run through the so-called "Indian desert," which appeared almost to have been forgotten.

A good deal of my information is taken from a geographical work, the result of a personal survey, by a well read and very intelligent native of India of foreign descent, made *previous* to 1790 A. D., which was the year in which his work was completed, or just six years *before* the time the writer in the Review above mentioned, in his last statement just quoted, says, that the Bīáh and Sutlaj "first flowed in one bed." Farther on I shall give some extracts from his admirable Survey record.

Before attempting to describe the changes which have taken place in the courses of the rivers of the Panj-áb, and the Sindhu, Ab-i-Sind, or Indus, and the disappearance of the Hakrá or Wahindah, it will be well to give a few extracts from the old Musalmán geographers and historians; and although some part of what they say, is, seemingly, mere nonsense, we must allow for the conjectural spelling of translators (in cases where we have not the original works to refer to), who have attempted to render names, which, in the MSS. translated, have often no vowel points whatever. Indeed, for geographical purposes, and recording proper names in general, the 'Arabic character is, from the carelessness of copyists, and the nature of the characters themselves, an unfortunate one.

<sup>76</sup> Thus far I had written twelve years since, as a note to the investment of Uchchh at page 1155 of my "Translation of the Ṭabaḳát-i-Náṣirí." I have allowed it to stand just as it was then written.

<sup>76</sup> The Report of Lieut. J. G. Fife, of the Bombay Engineers, to the Government of that Presidency on the project of "restoring water to the ancient channel of the Indus called the Eastern Narra," in which the Hakrá is referred to, as having once flowed through these parts, is dated as far back as September 1852, and Burton also refers to it in his work on Sind, published in 1851.



The geographers and geographical works I propose to quote are the following. Ahmad, son of Yahyá, son of Jábír-al-Balázirí, who wrote his "*Futúḥ-al-Baladán*" about 270 H. (883–84 A. D.).<sup>77</sup> Abú-l-Kásim-i-'Ubad-ulláh, known as Ibn Khurdád-bih, who wrote about 275 H. (888–89 A. D.), or, certainly, before 300 H. (912 A. D.). Abú-Zaid-al-Ḥasan, a native of Siráf, who appears to have written shortly after Ibn Khurdád-bih; for the writer who follows, met him at Baṣrah in 303 H. (916 A. D.), and seems to have compared notes with him. Abú-Ḥasan, surnamed Al-Mas'údí, who wrote his "*Murúj-uz-Zahab wa Ma'ádin-ul-Jauáhir*" in 332 H. (943–44 A. D.); Abú-Ishák-al-Istakḥarí,<sup>78</sup> who wrote between 340 and 350 H. (951–52 and 961 A. D.). The "*Kitáb-ul-Masálik wa Mamálik*," written a few years after the preceding, and nearly about the time that Muḥammad, Abú-l-Kásim, son of Hauḳal, hence, chiefly known as Ibn Hauḳal, wrote his "*Ashkál-ul-Bilád*," whose work bears a considerable resemblance to the "*Masálik wa Mamálik*" in many places. Ibn Hauḳal completed his work in 366 H. (976 A. D.). He appears to have met Al-Istakḥarí in his travels somewhere in Sind, or in the Multán territory. The next in point of date is the celebrated Abú-Riḥán, Muḥammad, son of Ahmad, familiarly known as the *Ustád* or Master, Bú-Riḥán, surnamed Al-Berúní, who wrote about the year 420 H. (1028 A. D.),<sup>79</sup> or soon

<sup>77</sup> He died in the year 279 H. (892–93 A. D.).

<sup>78</sup> He is not called "*Istakḥarí*," because he was a native of that famous Persian city called Istakḥar or Persepolis. The word means a pond, lake, or sheet of water. 'Arabs write the name *Iṣṭakḥar*.

<sup>79</sup> He finished his work, the *Tahkík* (not "*Tárikh*," as in Elliot and Sachau) -ul-Hind by the first day of the year 423 H., which commenced on the 18th of December, 1031 A. D. In the year preceding, in several places in his work, he styles it "our year," because it was that in which his great patron, Sulṭán Mas'úd, obtained the restitution of his rights as the eldest son and heir of his father, and assumed the throne at Hírat in the fifth month of that year. He did not compose it in "*Afghanistán*," nor in "*the Afghan-Indian empire*," as Prof. E. Sachau, the editor of the text and translator of the same, assumes, because *Ghazni*, or *Ghaz-nín* or correctly, *Ghaz-nih*, but never "*Ghaz-na*," although included in the modern *Afghán state*, is not, and never was, included within "*the Afghánistán*," or native country of the *Afgháns*. What that means and constitutes may be seen from my work entitled "*NOTES ON AFGHANISTÁN*," etc., page 453 to 470; and the world has not yet seen an "*Afghan-Indian Empire*," and Sulṭán Maḥmúd was a *Turk*, not an *Afghán*.

Some errors of a similar kind will be found in the English Preface to the 'Arabic text, and also in the Preface to its translation by the same learned Professor.

Abú-Riḥán was not brought to *Ghazni*, under any compulsion, nor was he detained against his will by Sulṭán Maḥmúd in his dominions; for his contemporary and admirer, Abú-l-Faḥl-i-Baihaḳí, tells us, that he first came to the Sulṭán's court, in the suite of the *Khwárazmí* ruler, the son-in-law of the Sulṭán, and that of his own accord he entered Sulṭán Maḥmúd's service. It was in the train of that conqueror, and that of his chief patron, Sulṭán Mas'úd, that Bú-Riḥán had the opportunity of

after. He is extensively quoted by the author of the *Minī'-at-Tawárikh*, and by the Fanákati, but honestly so; for they both acknowledge what they have extracted from his "*Tahkik-ul-Hind*. After him comes Abú-'Abdullah, Muḥammad, surnamed Al-Idrisi, who wrote his work "*Nuzhat-ul-Muḥták*," about the middle of the twelfth century of our era, about 545 H. (1150–51 A. D.). The next is Zakariyá, the Kāzwini, who wrote his "*Aḡár-ul-Bilád*" a century or more after Al-Idrisi, about 661 H. (1263 A. D.), a short time only after the siege of Uchchh by the Mughals, before noticed. He, however, quotes chiefly from the "*'Ajá'ib-ul-Baladán*" of Muḡ'ir,<sup>80</sup> son of Muhálhil, the 'Arab, who travelled into India and China in 331 H. (942–43 A. D.), and these quotations may really be considered to refer to the places noticed as they existed when the latter wrote. Lastly, the work of Ibn-al-Wardí-al-Karḡhí, who wrote between 668 and 684 H. (1269–1285 A. D.), or about twenty years after the "*Ṭabaḡát-i-Náṣirí*" was completed.

AḤMAD, SON OF YAḤYÁ, AL-BALÁZIRÍ,<sup>81</sup> states in his "*Futūḥ-ul-Baladán*," that Muḥammad, son of Kāsim, after his conquest of Sind, advanced to Multán, and, that "the Muḥammadans discovered there, beneath the idol-temple a *Bait* [بيت], ten cubits in length and eight in breadth, containing a considerable quantity of gold." The 'Arabic word "*bait*" here used does not mean "a house" only, as some appear to have assumed, but it signifies also "a vault," "a chamber," "receptacle," "repository," and many other meanings of a similar kind, and here refers to a receptacle or repository for the treasure, such as was not

visiting Hind, and instituting his inquiries respecting that country. He may have visited parts farther east along with the troops of those Sulṭáns in their expeditions, but he appears not to have dwelt any time in those parts, except at Multán, and Láhor—at that period the seat of Government of the Muḥammadan territories recently conquered from the Hindús—and here he was enabled to institute his inquiries (*tahkikát*, hence the title "*Tahkik-ul-Hind*") respecting Hind and its people. He is neither called "*Bérúní*," as in Elliot, nor "*Alberuni*," as in Sachau, but was entitled *Al-Berúní*. He is not so entitled because of any place so called; for he was a native of *Khwárazm*, and there was no place so called in that country. Being a foreigner, or rather a stranger—for, when he wrote, *Khwárazm* was an integral part of the *Ghazniwí* empire—when mentioned as Abú-Riḡán, that being not an uncommon name by any means, by way of distinction, he was styled Abú-Riḡán or Bú-Riḡán, the *Berúní*, that is, the outsider—the stranger or alien.

<sup>80</sup> This name in 'Arabic signifies, 'one who notices any novelty,' 'a spectator,' 'observer,' 'spy,' etc. *Mis'ar*, as in Elliot, Vol. I, page 95, is meaningless.

<sup>81</sup> He is so called because he was addicted to the use of a mixture—some say intoxicating—made from the *balágir*, or Malacca bean, which is used in medicine. The word is an 'Arabic one, and written with the letter *ḡ*. He is incorrectly called "*Al Biláduri*," "*Beládsori*," "*Biládori*," and the like, anything but by the correct name.

unusually, but generally, contained in Hindú idol-temples, beneath where the idol stood, and such as Sulṭān Maḥmūd-i-Sabuk-Tigīn discovered beneath the idol in the temple of Som-nāth.<sup>82</sup> The Balázirī continues: "There was an aperture from above into this receptacle through which the gold was poured in; and it is from this circumstance that Multán is called 'the *Farkh* [فَرْخ] or Temple containing the *Bait* or Receptacle for Gold.' The idol-temple of Multáu received rich offerings from the people of Sind, and others who made pilgrimages thereto."

This writer details the history, rather than the geography, of Sind and Multán.

IBN KHURDÁD-BIH, whose work does not contain much on the subjects here discussed, says: "Multán is called 'the *Farkh* [فَرْخ] or Temple of the *Bait* or Receptacle of Gold,' because Muḥammad, the son of Kásim, the conqueror of Sind, and lieutenant [of his uncle and father-in-law], Al-Ḥajjāj, acquired forty *buhárs*<sup>83</sup> of gold in a depository or receptacle in that place, which was henceforth called 'the *Bait* or Receptacle of gold.' \* \* \* From the Mīhrān [sic in MSS. and in the printed text of M. Barbier de Meynard], which is the first place on the borders of Hind, is four day's journey."<sup>84</sup>

ABÚ-ZAID-AL-ḤASAN of Sírāf states, that "the idol [temple] called Múltán or Multán lies on the frontiers of Maṣṣúriyah;<sup>85</sup> and people come a distance of many months' journey, and make pilgrimages thereunto. They bring thither the '*ūd-i-ḡumārī* [the sweet-smelling wood

<sup>82</sup> The depositing of treasure in a vault or chamber in the midst of idol-temples was not peculiar to Multán, as shown from the fact here related, under or beneath the idol, and not in its "belly," as some of the "Firishta" translations have. Mir Ma'gūm of Bakhar also states, that, when Muḥammad, the son of Kásim, early in 94 H., captured Asat Kandahar, ~~and the city of Asat Kandahar, north of the Bāh, and a considerable distance above Uchchh for which it has been "identified" (see note further on), its idol temple was destroyed, and in the midst thereof, deposited, an immense treasure was found.~~

At this very time (1889 A. D.), the Mahant, or religious superior of the idol temple of Tripátī, in the Madras Presidency, has been convicted of robbing the vault or chamber under the idol, and appropriating the treasure contained therein. See also page 191, and note 97.

<sup>83</sup> See page and note just referred to respecting this word and its meaning.

<sup>84</sup> Elliot (Historians, Vol. I, page 15) actually makes Bakhar out of this, by which he of course means Bakhar on the Ab-i-Sind or Indus. The word, as it now stands, is unintelligible, but might possibly refer to Basmid [بسمد]. Besides, the author says "on the borders of Sind," while Bakhar is, and always has been, since its foundation, in Sind, but, at the period in question it was unknown. The place referred to lay, no doubt, east of Multán.

<sup>85</sup> The territory dependent on it, at that period, all Sind, of which Maṣṣúriyah was the capital.

brought from Kāmṛūn], so-called from the country where it grows. \* \* \* This 'ūd is presented to the attendants of the temple, who use it as incense. \* \* \* It is valuable, fetching, at times, as much as two hundred dīnārs the mann. \* \* \* The merchants purchase the wood from the attendants." \* \* \* This is all he says either respecting Multān or Maṣūriyah.

AL-MAS'ŪDĪ says: "Respecting the rule over Multān, we have already said that it belongs to the descendants of Usāmah, son of Luwāī, son of Ghālib, [one copy has "descendants of 'Uḡman" i. e., the Banī 'Uḡmān], a Kureṣh, who has a powerful army. Multān is one of the frontier territories of the Musalmāns,<sup>86</sup> which they compute to contain within its limits of about 120,000 villages and estates [one copy has "towns and villages," which is absurd]<sup>87</sup> We have already mentioned the bud or idol of Multān, which is also known as Mūltān. \* \* \* At the time of my arrival in that city, after the year 300 H. [912-13 A. D.], the Malik then ruling was named Abū-l-Lihāb-al-Munnabih, son of Asad-al-Kureṣhī [in one copy, Abū Dilahāt, son of Asad-ul-Munabbih-us-Sāmī-ul-Kureṣhī]. It was at the same time that I visited Maṣūriyah. Abū-l-Munzir, 'Umar, son of 'Abd-ullah, then ruled over that territory. I also saw his Wazīr, Riyāḥā [رياحا], also his two sons, Muḥammad and 'Alī. I also met an 'Arab, one of the Sayyids, among the Maliks [there], who was noted under the name of Ḥamzah. A great number of the posterity of 'Alī [the Khalīfah], son of Abū-Tālib, and of 'Umar, son of 'Alī, the offspring of Muḥammad, son of 'Alī, had taken up their residence there.<sup>88</sup> Between the Maliks of Maṣūriyah, and the family of the Kāzī, Abī-ush-Shawārib, there was close relationship, and a common origin. In fact, the Maliks who, at present, rule over that territory are

<sup>86</sup> What at that period was considered the frontiers of Khurāsān, not as it is known at present. The territory dependent on Multān extended to the skirts of the mountains west of the Indus, as far up as the southern boundary of Bannū.

<sup>87</sup> What are known as *mauza's* and *chaks*, and might be termed villages and hamlets, consisting of tracts of land containing a few inhabitants.

One of the "Gazetteers" I have referred to, tells us, that, "*Al Mazūdī* [sic] describes Mooltān as surrounded by 120,000 hamlets—an evident exaggeration, but one which gives an idea of general prosperity."

The territory dependent on Multān was about two hundred and fifty-six miles in breadth from S. E. to N. W., and rather more in length from N. E. to S. W., narrowing to about one hundred and eight.

<sup>88</sup> This was written about two centuries after it was founded, and it is referred to centuries after, consequently; Maṣūriyah was not so "short lived" as some have imagined, nor was it such a small fortress, seeing that in Al-Istakhārī's time it was twice the size of Multān. See "Journal of the Royal Asiatic Society" for 1884, page 282.

descended from Habbár, the son of Al-Aswad, and are known under the designation of Baní 'Umar, from 'Umar, son of 'Abd-ul-'Azíz; the Kuresh. This 'Umar must not be confounded with 'Umar, son of 'Abd-ul-'Azíz, son of Marwán, the Umayyah [Khalífah]."<sup>89</sup>

"From Múltán to Manşúriyah is seventy-five *farsangs* of Sind, that is to say, the *farsang* of eight *míl*." At eight miles to each, as here given in the text, the distance would be just six hundred miles from Manşúriyah.<sup>90</sup>

In another place he says: "This territory (Múltán) obeys a Kureshí of the Baní-us-Sámah, the son of Lawí, son of Ghálib; and this place is the general rendezvous of the *káfílahs* which proceed into Khurásán."

"The KITÁB-UL-MASÁLIK WA MAMÁLIK says: "Múltán is a city about half that of Manşúriyah, and is called 'the *Farkh-i-Bait-uz-Zahab* [The Temple of the Receptacle or Vault of Gold].'" Múltán has a strong *hisár*, but Manşúriyah is more populous. The reason why Múltán is called the *Farkh-i-Bait-uz-Zahab* is, that, when the Musalmáns captured it, they were poor and needy. They there found much gold, and they supplied their wants, and acquired strength.

"About half a *farsang* outside Múltán there are *kúshks* [lofty edifices], and there the Amír of Múltán has his residence. \* \* \* He is a Kuresh of the descendants of Sám [سام]<sup>91</sup> son of Luwaí [لوى], who seized upon Múltán. He does not pay obedience to the Khudáwánd [Master, Possessor, Lord, etc.] of Manşúriyah, but reads the *khutbah* for the Khalífah."

IBN HAUKAL'S statements agree with the preceding pretty well so far, but here he states, that, "~~About half a farsang from Múltán are lofty edifices called Qhandráwar, the residence of the Amír, who never enters Múltán except on Fridays [to say his prayers in public].~~ He is a Kuresh, of the sons of Sám, son of Núh,<sup>92</sup> who first occupied this part; and he reads the *khutbah* for the Khalífah."

ABÚ RIHÂN-AL-BERÚNÍ says "there was a famous temple at Múltán

<sup>89</sup> See note farther on.

<sup>90</sup> The direct distance, as the crow flies, is about three hundred and fifty miles or about one hundred and ten ordinary *farsangs*. Eight miles to the *farsang* cannot be correct: it is about three. The *vojánah* was eight *míl*, and this, I expect, is how the distance became confused. However, in any case, the distance is not correct. See Bú-Rihán's computation of the *farsang* at page 191, and also note 118, page 209.

<sup>91</sup> The "Baní Usámah" of Al-Mas'údí above.

<sup>92</sup> This word نوح—Núh—which was without a point, is, without doubt, meant for لوى—Luwaí—as mentioned by Al-Mas'údí, and in the *Masálik wa Mamálik*. Both works concur in the first name—Sám. Respecting this word, and these Amírs, a

dedicated to the sun, and, consequently, styled آدیتا [Āditya]. \* \* \* When the Karāmitāhs [descended from this Sām, son of Luwaī, just named] took possession of Mūltān, the subduer thereof Jalām,<sup>93</sup> son of Shāibān, destroyed the idol and broke it to pieces, and slew the priests. The *kaṣr* [the 'Arabic of *kūshak* previously mentioned] which was constructed of kiln burnt bricks on an elevated position,<sup>94</sup> he made the Masjid-i-Jāmi' [Friday Masjid] instead of the old one, which he commanded should be shut up, out of hatred towards every thing that had been done previously under the governors on the part of the Banī Umayyah."

In another place he says, with reference to the changes in the names of cities, that Mūltān was originally called Kasht-pūr [کشت پور—Kāshya-pūr?], then Hans-pūr [هنس پور], then Bag-pūr [بگ پور], then Sānb or Sānab-pūr [سانب پور], and, at length, Mūlistān [مولستان], *mūl* signifying, 'root,' 'origin,' 'lineage,' etc. (also 'the nineteenth lunar mansion') and *istān*, a place.<sup>95</sup>

He also refers, but not expressly, with reference to the *Farkh* of the Receptacle or Repository of Gold, to the weight known as *bhār*, which, he says, is mentioned in the annals of the conquest of Sind, and states, that it is equal to the weight of two thousand *fuls* or *puls* [*fulūs*—small copper coins about the weight of an Indian *paisah*], which absurd statement makes it equivalent to the weight of an ox."<sup>96</sup> In another place he computes the *farsakh* or *farsang* as equivalent to four *mīl* or 16,000 cubits [دربع], not yards.

Then comes AL-IDRISĪ, who states, that, "Mūltān is close to Hind; indeed, some writers place it in that country. It equals Manṣūriyah in size, and is called 'the Bait or Receptacle of Gold.' \* \* \* Mūltān is a large city, which is commanded by a fortress having four gates, and

<sup>93</sup> See page 189 what Al-Mas'ūdī says about the rulers, and the preceding paragraph. Mas'ūdī wrote a century before Bū-Rihān, and knew more about the rulers of Mūltān than that writer, who evidently is mistaken in the name, or the text is wrong. The Amīr who is referred to is the one who, on the part of the 'Abbasīs, ousted the Amīr on the part of the Umayyahs, named Mūsā, son of Ka'ab-ūṭ-Tamīmī, from this territory.

<sup>94</sup> There are no elevated positions there now, except the position on which the fortress stands, and the Maṇḍī-Awā, which, at the siege of Mūltān, was captured and occupied by the Bombay column, on the day of the attack on the suburbs the 26th January, 1849. I am inclined to believe that that is the spot indicated.

<sup>95</sup> Shahāmat 'Alī, author of the "Sikhs and Afghāns," who served in political employ for many years in this vicinity, in his abbreviation of the "Annals of the Dā'ūd-putrah Nawwābs," says, that Mūltān at different periods was known as Hest-pūr, Bakhar-pūr, etc.

<sup>96</sup> See following note.

surrounded by a wet ditch. \* \* \* It [Multán] is called 'the *Farkh* [فرخ] or Temple of the Chamber or Receptacle of Gold,' because Muḥammad, son of Kásim, found forty *buhárs* of gold concealed in a *bait* [vault, chamber, repository, receptacle, and the like] there. *Farkh* and *Bihár* [or Wihár, 'b' and 'w' being interchangable, and miscalled vulgarly "Vihár"] have the same signification.<sup>97</sup> The environs of this

<sup>97</sup> It must be remembered, that Abú Zaid-al-Ḥasan, and also Al-Mas'údí, just quoted, state, that *the idol* and its temple also were called Multán: the city which sprang up around it was so called after the idol. Consequently, the finding of so much gold "in Multán," does not refer to the city or town, but *the temple of the idol, Multán*.

Elliot, in the first volume of his "Indian Historians," page 14, quoting from a French translation of Ibn Khurdád-bih's work, has translated the name applied to this temple as follows:—

"Multán is called 'the *farj* of the house of gold,' because Muḥammad, son of Kásim, lieutenant of Al Ḥajjāj found forty *bahárs* of gold in *one house of that city*, which was henceforth called "House of Gold." *Farj* (split) has here the sense of a "frontier." A *bahár* is worth 333 *mans*, and each *man* is two *ratls*."

As to this very strange translation, he makes no comment; and, in other places, although the correct word is given by him, and its correct meaning also (which has thus been turned into *farj*) clearly shown, it was not perceived by him or his Editor apparently.

At page 35 of the same volume, in his extracts from Ibn Ḥanḳal, Elliot has: "Multán is half the size of Mansúra, and is called 'the *boundary* of the house of gold." To this is appended the following footnote:—"The Ashkálú-l-Bilád says "*burj*" or bastion [this in the original character would be *برج* without points; so it will be seen how this fearful blunder has arisen], which, at first sight, would seem a more probable reading; but the reasons assigned for reading the word "*farj*" are so strong [!] as set forth by M. Hamaker, in his note to the *Description Irace* (p. 67), that we are not entitled [!] to consider "*burj*" as the correct reading. (Quatremère concurs in reading "*farj*." *Jour. des Sav.* See also Ibn Khurdádba and the account given in the *Chachnámá*)."

The letters of this word, in the originals generally, are *فرج*, without points, the scribes deeming it unnecessary to point so well known a word. Some ignorant scribe mistook it for *برج*, and so made *برج*—*burj*—a bastion of it, and another took it for *مرج*, and so made *مرج*—*marj*—a meadow of it, and never guessed what the correct word was; but they very properly, did not think themselves "entitled" to write it '*farj*.' Three words can be made of this *فرج*, namely:—1. *فرج*—*farj*, which I am certain will not be found so pointed in any MS. copy of any of the works quoted by Elliot; 2. *فرح*—*farah*—which signifies 'joy,' 'gladness,' 'cheerfulness,' etc.; and 3. *فرك*—*farkh*—which signifies, as described in the Muḥammadan dictionaries, 'a pagan temple,' and also 'an idol,' the plural form of which is *فركار*—*farkhár*—signifying 'idol temples' in general, and likewise idols; and, in this sense, the word will be found mentioned in Abú-Rihán-al-Berúní's "*Aḡār-ul-Bihār*," a translation of which was lately published by Prof. C. E. Sachau, in which

city are watered by a little river [a canal or water-out, no doubt] which unites with the Mihrán of Sind. At one *míl* from Multán

the author uses the word *farḥār* with another, plainly showing (as Al-Idrisi also shows), their significations; namely, *bihār* or *wihār* thus—"FARḤĀR TO BIHĀR"—the first referring to Hindú temples, and the latter to Buddhist convents or monasteries.

Certainly, our dictionaries, among other meanings, describe "*farj*" as "the confines of a hostile country," "a dangerous place," "splitting," "separating," and the like, but the more general and universally applied and understood meaning is, "*puenda tum maris tum femina*;" but why on earth this latter word, "*farj*," bearing such a meaning, should have been chosen instead of "*farḥ*" is inexplicable, unless the French translator was quite ignorant of its existence, or of its correct signification and application. Besides, there was no plausible reason for selecting the word "*farj*" in preference to the two other words which the unpainted letters ح are capable of representing.

In his extracts from Idrisi's geography, (p. 82) Elliot himself renders the word "*farḥ*"; and the reason why Multán was called "the *farḥ* of the *bait* of gold" is clearly mentioned by the 'Arab author. In his extract from the Baláziri's work he has also "*farḥ*," and yet he failed to perceive that his previous rendering from the French translation was wholly unsuitable, and must be wrong, and that *bait* had other meanings than simply "a house." Had he given it a moment's thought, he certainly would have rejected "*farj*."

Again, in his extracts from the "*Chagh-Náma*," on the very same subject, he has (Vol. I., p. 205): "I have heard from the elders of Multán that in ancient times there was a chief in this city whose name was Jibawín, and was a descendant of the Rái of Kashmír. He was a Brahman and a monk, he strictly followed his religion, and always occupied his time in worshipping idols. When his treasure exceeded all limit and computation, he made a *reservoir* on the eastern side of Multán, which was a hundred yards square. In the middle of it he built a *temple* fifty yards square, and he made there a *chamber* in which he deposited forty copper jars each of which was filled with African gold dust. A treasure of three hundred and thirty *mans* of gold was deposited there. Over it there is a temple in which there is an idol made of red gold, and trees are planted round the reservoir."

This is not quite what the Chagh Náma states, which is literally to the following effect:—

"It was thus ascertained from the elders of Multán, that, in ancient days, and in times long past, in this city there was a Rá'e, Jas-want [جس-ون—Jas-wín?] by name, of the posterity of the Rá'e of Kashmír. He was a Bráhman and a priest, and in the observance of his religion strict and zealous. He was constantly occupied in the adoration of idols. When his treasures exceeded the bounds of computation and calculation, he constructed a reservoir of water, 106 *gaz* long, by 106 *gaz* broad; and in the midst of the reservoir he erected an idol-temple, 50 *gaz* by 50 *gaz*, and therein made a receptacle [دكانی], and there deposited forty copper jars or vessels, each of which was filled with fragments of African gold, amounting to 300 *manns* of buried treasure. Over the receptacle was the place for an idol, and there an idol was set up, formed of red gold. Round about the reservoir trees were planted." Muhammad, son of Kásiw, having obtained information of this from the priests,



is Jand-úr [چندور—Qhand-úr? the Qhandráwar of Ibn Ḥauḳal, and Jand Rád of some others], a collection of fortifications<sup>98</sup> strongly built, lofty, and well supplied with fresh water. The Amír of Multán passes the spring and his leisure time here. Ibn Ḥauḳal states, that, in his time, the Amír used to proceed every Friday from these fortifications to Multán, mounted on an elephant, according to an ancient custom."

and the place opened and the treasure was found. "On being weighed, the gold just contained in those forty vessels or jars was found to amount to 13,200 *mans* of gold." This, together with the gems and pearls obtained in the sack of Multán, was deposited in the treasury. I may mention that the lowest computation of the *mann* is 2 lbs of 12 oz. each, but, according to some, 6 lbs; and, by the lowest computation, would amount to the enormous weight of 26,400 lbs, or 316,800 ounces of gold. No wonder the place was called "temple of the depository of gold."

It is quite time that this "*farj*" error should be corrected and washed out. What more can be required to do so than these accounts?

Al-Idrisi says above, that "*farḳh* and *bihār* have the same signification," considering, it seems, that, where idols are worshipped, must be an idol-temple, but the word "*buhār*," written with short 'u' for the first vowel, and not 'i,' as in the word signifying a Buddhist temple, refers to a weight, said to be equal to about 400 lbs English, and it also means, "a vessel in shape like an ewer." The Sanskrit word वित्, written in 'Arabic characters' ویت, pronounced *bhār*, means 'weight,' 'weight of gold,' etc., but, as the Qhagh Námah says, he deposited forty *jars* or *vessels*, the Persian word of that meaning just referred to is doubtless correct.

<sup>98</sup> To the eastward of the fortress of Multán, facing the tomb and shrine of Bahá-ul-Ḥaḳḳ wa-d-Dín, Zakariyá (*vul.* "Bahawal Hak"), at about the distance of a mile and a half or little more, and extending a considerable distance either way, are—or were, for they may have been demolished by the railway Vandals for railway ballast *now*—the remains of many stone and brick-built buildings (as near as I can recollect after the lapse of some thirty-five years), which bore the marks of considerable antiquity, and among them was a good size *masjid*. I have often ridden to them of an evening, but never thought of instituting any inquiries respecting the ruins, and much regret now that I did not. I certainly wondered what could have been the object of building such structures in a perfectly waterless position; for there were no traces of wells near by, as far as I can remember. The ruins were bounded farther east, I *now* find, by the bed of a stream, a small branch of the Ráwí, possibly, which had been utilized as a canal; and this may have been the "little river" mentioned above. That the Ráwí and all the other rivers of the Panj-áb flowed east of Multán at the period these buildings were inhabited there is no doubt whatever. The Lolí Wá-han (which is a mere canal or cutting from the Chin-áb) ran nearer to the fort walls on the north-east, and passed, and still passes, near the east side of it, but it is now a very petty stream. It is noteworthy that the lands immediately south-east of the city of Multán are styled Taraf Ráwí—the Ráwí Side—to this day.

It is possible that the ruins I have mentioned were connected with, or were included in, "the collection of forts referred to in the text above. At the time the author of the "*Ṭabaḳát-i-Náṣiri*" was at Multán there was a standing camp hereabouts.

ZAKARÍYÁ, THE KAZWĪNĪ, says very little respecting Multán in his "Āḡār-ul-Bilād," but refers to what he has previously written from the "ʿAjā'ib-ul-Buldán," which agrees generally with what others have written about it and its idol-temple.

IBN AL-WARDĪ-AL-KARSHĪ, who wrote between the years 668 H. and 684 H. (1269 and 1285 A. D.), mentions Multán very briefly, but, like all others, he says it is called the "*Farkh* [فرخ]-i-Bait-uz-Zahab"—The Temple containing the Receptacle or Vault of Gold."

Having related what the old writers say about Multán and its '*Farkh*,' I will now turn to Manṣúriyah as the next most important place connected with the courses of the rivers, and having completed that, I shall be better able to mention what they say respecting the rivers themselves, and the places lying along or near their banks.

IBN KHURDĀD-BIH gives no particulars respecting it, and Al-Mas'ūdī says but little. He states that Multán is seventy-five *farsangs* of Sind, each *farsang* being eight *mīl* [miles], distant from Manṣúriyah.<sup>99</sup> The villages and inhabited places dependent on Manṣúriyah [the territory] amount to 300,000. The whole country is well cultivated, and covered with trees and fields.<sup>100</sup> It is constantly at war with a nation called Med, who are a race of Sind, and also with other races on the frontier thereof. Like Multán it is on the frontiers of Sind,<sup>101</sup> and so are the towns and villages belonging to it. Manṣúriyah is so called from Manṣúr, son of Jamhúr, the Amir on the part of the Baní Umaiyah."<sup>102</sup>

<sup>99</sup> How then is it possible that Manṣúriyah could refer to Bakhar as Abú-l-Faḡl (and those who follow him) erroneously supposed? This is the greatest error ever made by Abú-l-Faḡl. See note 90, page 190.

The Multán territory extended south as far as Alor or Aror; while the territory of Manṣúriyah extended from and included Alor or Aror and its district southwards to the sea-coast.

<sup>100</sup> This may be somewhat highly coloured, but the lands along the course of the Mīhrān, and farther east along the banks of the Hakrá or Wahindah, were remarkable for their fertility. See the "Report on the Eastern Narra," page 34, paragraph 3; 39, 7; and 40, 17.

<sup>101</sup> Others, more correctly, state, that it is in Sind, of which there is no possible doubt.

<sup>102</sup> It is strange that such discrepancy should exist respecting the foundation of this place. The Manṣúr here referred to is Manṣúr, son of Jamhúr, who was the last Amir of Sind on the part of the Baní Umaiyah, who was defeated by Músá, the son of Ka'ab-ut-Tamīmī, who was despatched from Marw by Abú Muslim into Sind soon after he declared for the accession of the Baní 'Abbás to the *Khiláfat*. See farther on.

The Balázirī states (see farther on), that Ḥakam, Amir of Sind, about the year 120 H. (738 A. D.), built Mahfúrah, and that 'Amro ('Amr) son of Muḥammad, the unfortunate conqueror of Sind, who served under Ḥakam, founded Manṣúriyah; while

The ISTAKHARÍ says, "Manṣúriyah which is a city of Sind, is about a *mīl* [mile] long and a *mīl* broad, and is surrounded [part of the territory dependent on it] by a branch of the Mihrán [as shown in the map taken from the Masálik wa Mamálik]. The inhabitants are Musalmáns."

The MASÁLIK WA MAMÁLIK, with which work that of Ibn Hauḳal very nearly, but not altogether, agrees, states that, "Manṣúriyah which they call Sindiyah,<sup>103</sup> is a city of Sind, about a mile long and a mile broad, and surrounded [*i. e.*, part of the territory dependent on it] by a branch of the Mihrán. It is like an island. The people of Manṣúriyah are Kureghis, the descendants of Habbár, son of Al-Aswad, who seized upon it; and, up to this time it is in the hands of his descendants. \* \* \* The people in their dress and habits are like the people of 'Iráq, but their Bádsháhs<sup>104</sup> are like Hindús in appearance, and have rings in their ears."

BÚ-RĪḤÁN-AL-BERŪNÍ enters into no particulars respecting this place, in this part of Raḡhíd-ud-Dín's history, but, in his account of the rulers of Dillí, in another part, he says (as quoted by Raḡhíd-ud-Dín), that, "previous to the time of the Sámánis, Muḥammad, son of Kásim, marched from the side of Sijis-stán into Sind, and subdued Bahman-no [بهمنو], to which he gave the name of Manṣúriyah,<sup>105</sup> and to Multán, Ma'múriyah."

Al-Idrisí says, on the contrary, that Manṣúriyah was founded in the beginning of the Khiláfat of Al-Manṣúr [Abú-Ja'far-al-Manṣúr], the 'Abbási, the second Khalifah of that family, who did not succeed to the Khiláfat until 136 H (754 A. D.), some sixteen years after the time of Ḥakam and 'Amro ('Amr) and some four years after the overthrow of Manṣúr, son of Jamhúr, the last Umayyah Amír.

It would appear from this, if all three writers are correct, that Manṣúriyah was founded in Ḥakam's time, finished in the time of Manṣúr, son of Jamhúr, and the name merely continued by Abú-Ja'far-al-Manṣúr. Bahman-ábád, or Bahman-nih, the Bahman-no of the Sindis, was founded centuries before, by Bahman, son of Isfandiyár, in the reign of Gushtásib, sovereign of Í-rán-Zamín, who made conquests in the valley of the Indus, and western Hind, which were retained up to within a few years of the fall of the Í-rání empire. See the following note 105, see also my "NOTES ON AFGHÁNISTÁN," etc. pages 318 and 509.

<sup>103</sup> That seems to mean the Sindí Manṣúriyah, or Manṣúriyah of Sind, to distinguish it from the other Manṣúriyah.

<sup>104</sup> This word does not refer to sovereigns here, but to chiefs. See my "NOTES ON AFGHÁNISTÁN," page 154.

<sup>105</sup> See the extract from Bú-RĪḤÁN, page 219. This place, Bahman-ábád or Bahman-nih, notwithstanding that more than one old author distinctly states by whom it was founded, European writers persist in calling "Brahmanábád," because it is incorrect, seemingly.

A specimen of this dangerous system appears in Professor E. Sachau's edition of the text of Bú-RĪḤÁN's work, printed at the expense of the India Office. At pages

In the printed text lately issued, this paragraph appears somewhat different from the above. It states that Muḥammad, ibn Al-Ḳásim, ibn Al-Munabbih, conquered Sind from the side of Sigistán, and subdued

11, 82, 100, and 162, the printed text has *براهمنا*, and this word is, actually, indexed and transliterated *Bráhmaṇābād*! In the same way *چ نچ* is indexed and transliterated "*Barygasa*"; and the words *پنج ناد*—*panch nad* are rendered "*Páncanada*"!! In this way, the words of an author are changed by persons who fancy they know better than he did; and those who have to trust to translations are thus led astray, and the author is often condemned for the conceited errors of his editor. The latter might, at least, say, that he had thought fit to substitute what he thought correct, and then the student could choose between them. The *Zain-ul-Akḥbār* of the Gardaizí, written in the reign of Sulṭān Furruḡh-zád of Ghaznih, about 445 H. (1052-53 A. D.), a rare and highly esteemed chronicle, states, that, "Bahman, son of Isfandiýár, who used to be styled *Ard-shír-i-Dardā Bázú*, or of the long arm," and respecting whom, in connection with the tracts on the Sindhu, *Ab-i-Sind*, or *Indus*, many traditions are related (and to some of which I have referred in my "NOTES" above-quoted respecting Bannú), "founded a city in the *zamín* of Sind, which was named by him Bahman-ábád or Bahman-nih, and which they call [when he wrote] *Manṣúriyah*." The author of the *Mujmal-ut-Tawárikh*, who wrote his work about 525 H. (1131 A. D.), quoting an old work from the Hindí language, translated in the year 417 H. (1026 A. D.), the year in which Sulṭān Maḥmúd of Ghaznih or Ghaznín undertook the expedition against *Som-náth*, says—"In the time of *Gushtásib*, ruler of *Y-rán-Zamín*, Bahman, his grandson, surnamed *Ard-shír*, son of Isfandiýár, led an army into Hind and Sind, and subdued a considerable portion of it. No member of the family of the ruler, named *Sunágh*, retained any power therein. Bahman founded a city between the frontiers or borders of the Hindús and Turks [the "*Indo-Scythians*," as they are styled] to which he gave the name of *Ḳand-á'il*, and, in another part, which they call *Bádah*, he founded a city which he named Bahman-ábád; and, according to one statement, this is *Manṣúriyah*." As to *Ḳand-á'il*, see page 217.

According to Tod (Vol. II, p. 44), the *Ráná* of Odeypoor is descended from Bahman.

This statement, I find, is confirmed by the chronicler, Muḥammad, son of Jarír, ut-Tabarí, whose statements may be considered indisputable, considering the sources of information which he possessed. He informs us, that the *Malik* of Hind who had been reduced to subjection by Bahman, threw off his allegiance, and that Bahman despatched the 'Alim, or Sage, *Akḥtúnúsh*, one of the three sages who had accompanied *Bukht-un-Naṣṣar* against Jerusalem, with forces against the *Malik* of Hind, whom he encountered in battle, overthrew, and slew. Bahman conferred that territory on *Akḥtúnúsh*. When the second of the three sages (the third had previously died), *Dáriúsh* or *Dáryúsh*, who held the government of the provinces of 'Irák and Bábal died, Bahman conferred them upon *Akḥtúnúsh*, and directed him to leave a *Ḳhalifah* or Deputy to administer the affairs of *SIND* and *HIND* [the *Bíah* and its tributaries, it will be remembered, is called "the River of Sind and Hind"], as his presence in 'Irák and Bábal was the most requisite. He, therefore, leaving a Deputy in Sind and Hind, returned as commanded. *Akḥtúnúsh* had put his wife [Queen *Yashti*] to death on account of some misbehaviour, after which he married a woman

the cities of *بهتولا* and *مولستان*, the first-named of which *he called* [sic]

Al-Manṣūriyah, and the latter, Al-Ma'mūriyah. This word *بهتولا* appears in three places with this additional letter at the end, but, in another

of the Bani Isrā'īl, whose name was Hadassah (Esther). He greatly favoured the Bani Isrā'īl, and released them from captivity. By his Isrā'īli wife he had a son *Kyrush* (کیرش) by name, who succeeded his father as ruler of 'Irāk and Bābal.

This 'Alim or Sago, Akhtúnúsh, which name is also written Akhtúrnuš—in Hebrew, Akhshúrús—who was made ruler over those territories, is the Ahasuerus of Holy Writ, and Artaxerxes of the Greeks.

We also know from At-Ṭabarī, as well as from many others, that Nūshīrwān, the Just, held extensive tracts of territory in the direction of Sind, if not in Sind itself. As to the influence of the sovereigns of Y-rān-Zamīn in that direction, Al-Mas'ūdī states, that Kai-Ká-ús founded a city in Kagh-mír, and that his son, Sīáwakh [سیاواخس—Sīáwakh?], during his father's lifetime, founded a city in Sind, called *Mīhr-ján*. Al-Mas'ūdī also states, that the kings of Sind and Hind, and of all the countries to the north and south, sent ambassadors to Nūshīrwān with rich presents, and to enter into terms of peace with him, because of the greatness of his power, the strength of his armies, the extent of his dominions, his rapid conquests, and the vengeance he had exercised upon so many kings and rulers, and also because of the justice of his rule.

In another place, the author of the *Muj-mal-ut-Tawárikh*, in his account of "Kafand," a Hindú king contemporary with Alexander, the Macedonian, says: "It is stated that he, Kafand, sent a Bráhmaṇ to Sámíd, his brother, directing him "to go to Manṣūriyah, expel the Y-ránis from the places which Bahman had conquered, and erect idol temples in the place of fire temples." The author, of course, does not mean that this city was then called Manṣūriyah, but Bahman-ábád which they called Manṣūriyah when he wrote.

Strabo, in his Fourteenth Book, referring to the account of India given by Eratosthenes, which he considers to be the most credible account of that country, says that at the time of the Greek invasion, the Indus was the boundary of India and of Ariana, and in the possession of the Persians, and that, afterwards, the Indians occupied a larger portion of Ariana, which they received from the Macedonians.

There is no doubt whatever, that the rulers of Y-rān-Zamīn, from time to time, held a considerable portion of the valley of the Indus, and that, up to the end of the reign of Nūshīrwān, the rulers of the western most parts of Hind, including the ancient Turk rulers of Kábul of the Buddhist faith, were tributary to him. Subsequently, when the Y-rání empire began to decay, some of these rulers began to regain their independence, and thus we find one dynasty of them, Hindús, under the title of "the Raṇ-Thel," in possession of Sind and Mukrán in one direction, and Kábul in the other, and opposing the 'Arab forces in their advance eastwards. See my "NOTES ON AFGHANISTÁN," page 567.

The Gardáizi relates how Bahrám-i-Gor, the Y-rání sovereign, came into Hind in disguise, and that Shermah its ruler, thinking he was merely a person of a noble Y-rání family, gave him his daughter in marriage, and conferred upon him, as her dower, Sind and Mukrán.

place, it appears as **برهمناباد**, the extra **ر**, of course, being added by some one else to make it suit the "Bráhmaṇ" theory. Where the extra **ر** came from in the first word it is hard to say; but, as both Rashid-ud-Dín,

When Sultán Muḥammad-i-Sabuk-Tigín in 417 H. (1026 A. D.), marched against Som-náth by way of Jasal-mír and Nahar-Wálah, he, on his return, took another route from thence towards Multán by way of Maṇṣúriyah and the banks of the Jihún [of Sind—the Hakra or Wahindah], and expelled its Karamiṇah ruler. See farther on. What with the aridity of the desert near the coast, and the annoyances of the Jaṭs of Multán and Bhátiah on the side of Jihún [i. e., the "great river"—the Mihrán of Sind] and other afflictions, a great number of his troops perished, as likewise did the greater part of the cattle of his army." The "Tabakát-i-Náṣiri," the earliest work written after the Gardaiẓi and the Baihaḳí wrote, says he was purposely misled by a Hindú guide into this waterless desert part, which refers to the *raṇ* or marsh of Kachh. (See note 128) But from all that is said, it appears that the country through which his route lay, for part of the way at least towards Jasal-mír, had only recently become waterless; and it is between this period and the return of Qhhotah, Amarání, as related by the Sayyid, Ṣadr 'Alī Sháh, that Bahman-nih, Bahman-no, or Bahman-ábád was destroyed by some convulsion of nature, or other calamity.

Maṇṣúriyah can scarcely have escaped; yet, from the way in which it is subsequently mentioned, there is very great doubt whether it was much injured, and it was certainly not wholly destroyed at the same time. One proof of this is, that Ibn Hankaḳ visited it in 350 H. (961 A. D.), and that when Aḥmad-i-Nial-Tigín, the governor on the part of the Ghaznávī Sultán of the conquered territory immediately east of the Indus—the present Panj-áb and part of Sind—rebelled in 425 H. (1033-34 A. D.), and had to fly, he made towards Maṇṣúriyah. At first he defeated a body of troops sent against him by Sultán Mas'úd, who then despatched another and larger force, under Tilak, the Hindú, son of a barber, and commander of the Hindú troops in the Muḥammadan service. Tilak overthrew Aḥmad-i-Níál-Tigín on several occasions; and was in the habit of mutilating such of the rebel's followers as fell into his hands, whether soldiery, or merchants and traders, by cutting off their noses and hands. At last Aḥmad-i-Níál-Tigín had to fly from the Láhor province, Tilak having by money tampered with his Turk-mán troops, and made for Maṇṣúriyah of Sind, with two hundred followers, and endeavoured there to cross the Mihrán of Sind—the Hakra or Wahindah and its tributaries—but it so happened, that, at that time, the river had risen considerably, and all the Jaṭs and Hindús around were in pursuit. No time was to be lost, and in his attempt to cross he was carried away by the current and drowned. His body having been swept along for a short distance, was washed into an inlet or creek or side channel (see farther on for a description of these inlets), and brought to land, where it was recognized by his followers. The head was cut off and sent to Balḳh where Sultán Mas'úd then was. This is differently related in the Baihaḳí, but the Gardaiẓi is much more circumstantial.

The "Tabakát-i-Náṣiri" states, that, in 623 H. (1226 A. D.), about the time that its author was at Uchehh, "a body of the Kharj tribe of Turks, part of the forces of the Khwárazmí Sultán, after the downfall of his power west of the Indus, retiring before the Mughals, appeared on the north-west frontier of Sultán Náṣir-ud-Dín, Kabá-jah's territory of Sind, and acquired supremacy over the *arṣ*-territory—of

and Fakhr-ud-Dín, the Fanákati, nearly six centuries ago, read this name from MSS. copies of Bú-Rihán's work as I have written it above, and as travellers, older by a century than he, also wrote it, I need merely

Manşúriyah, which is one of the cities of Síf-istán, but they were defeated, and their leader slain."

From what the author has stated it is not certain whether, at the period in question, the city or fortified town of Manşúriyah was inhabited or not; but it would appear from the context that it was, notwithstanding that he seems to refer more to its territory than the fortified town. It can scarcely be supposed, that the earthquake, which is said to have so suddenly destroyed Bahman-ábád and its inhabitants, would not have affected Manşúriyah likewise, to some degree at least, seeing that it was only about six miles distant from it. If it was inhabited when the Khalj Turks appeared there, it must have been in a ruinous state, and the inhabitants probably very few.

The accounts given by modern writers respecting Bahman-nih or Bahman-ábád, are contradictory and erroneous, with few exceptions. Nearly all persist in calling it Bráhmaṇ-ábád because, perhaps, the shortened form of the word Bráhmaṇ happens to be Bahman, and this shortened form to contain the same letters as the name of the son of Isfandiýár, but it never occurred to them, with a single exception, that it was not possible for the *I-rání* terminations of *nih* and *ábád* to be applied, at that period at least, to a Sanskrit word. Burton, who is the only exception, says (in his *Scinde*, Vol. I., p. 200): "Now Brahmanabad—a wrong name by the by—because the word is partly Sanskrit, and partly Persian; consequently, not Scindian."

The Balázirí is the only old 'Arab geographer who mentions "*old* Bahman-ábád," and he wrote about 270 H. (883-84 A. D.), but he does not mean by that that it was in ruins or had been destroyed, but the contrary. He says, that "Muḥammad, son of Kásim, went to old Bahman-ábád where the remainder of Dáhir's forces had rallied, and that it was situated two *farsangs* [little over six miles] from Manşúriyah, which, at that time, had not been founded, and that its site, at that period, was a *jangai*." See also farther on, where he says Manşúriyah lay on the *west* side of the estuary of the river, and Maḥfúzah on the *east* side.

The Fanákati, who quotes from Bú-Rihán, says, that, "Muḥammad, son of Kásim, after the capture of Debal, first took بهمنو (Bahman-no), to which he gave the name of Manşúriyah, and to Multán (quoting from Bú-Rihán, apparently), the name of Ma'múrah."

The error of Bú-Rihán, as to Muḥammad, son of Kásim, having named Bahman-ábád Manşúriyah, I have already noticed.

This difference between the names Bahman-ábád, Bahman-nih, and Bahman-no, may be easily accounted for. *Nih* and *ábád* are of much the same significations in Persian, but, in the dialect of Sind, *nih* would become *no*, as in Dar-belah—Dar-belo; Ubarah—Ubaro, Thaṭṭah—Thaṭṭo; Hakrá or Hakrah—Hakro, and the like, and thus Bahman-nih became Bahman-no.

The Táríkh-i-Táhirí says, that Bahman-ábád was destroyed after Alor or Aror had been deserted by the Hakrá through the iniquity of Dilú Rá'e, and that, at that period, Dilú Rá'e's brother, Jhotah or Ohhotah, Amarání, was then dwelling at Bahman-ábád, and that it was swallowed up in the earth—men, buildings, and all—the only signs of it being, in that author's time, a *mandr* or tall tower. He also

notice the fact of its appearance in the printed text, and shall not follow it. The statement, that Muḥammad, son of Kásim named Bahman-nó, "Al-Manṣúriyat," shakes my faith in Bú-Riḥán's accounts considerably,

says that Jhotah or Qhhotah, and his Musalmán wife, reached the town of Síw-istán, that is the town or chief town of the Síw-istán district, and which, in his day—about 1035–40 H. (1625–1631 A. D.)—was called Sihwán.

Just thirty years before this, Abú-l-Faḡl, in his *A'in-i-Akbari*, described Bahman-ábád, but his master's Hindú proclivities led him to alter or mistake the name for Bráhmaṇ-ábád, he not perceiving how strange a Sindí—Sanskrit—proper name appeared with a Persian termination. He says: "In early times Brahman-ábád was the seat of government. It was a large city, and its fortifications had fourteen hundred towers, and the distance between each was one *ḡandb*. To this day, of the towers and walls, numerous indications remain. After Brahman-ábád Alor became the capital." The *ḡandb* measure consisted then of sixty *iláhi gaz*, each of about thirty inches, but, we cannot calculate the extent of the walls, because we do not know the diameter of the towers. I have elsewhere mentioned the terrible error he makes in mistaking Bakhar for the site of Manṣúriyah; and he seems to have been totally ignorant that Manṣúriyah lay close to Bahman-ábád.

Mr. A. H. Bellasis, of the Bombay Civil Service, who was the discoverer of the ruins of this ancient city in 1854, identified the great mound—the *tall*, but not "Thúl" nor "Túl"—with Bahman-ábád itself, and I think correctly so. He says in his account of it: "On first entering Brahmanabad [he, too, calls it by the Bráhmaṇ name], so extensive and so complete are its ruins, that you feel lost in contemplating its utter desolation. \* \* \* After a little examination, the most prominent object that presents itself is the ruin of a high tower of brick-work standing isolated on a large heap of ruins." This is the same as is referred to by the author of the *Tárikh-i-Táhirí*, upwards of two centuries before. He supposed this to have been the citadel, but Thomas objected to this, "because the local coins consisted exclusively of specimens of 'Arab governors of Sind, with the name of Manṣúr on the margin, and because not a single piece could be attributed to any Hindú Rajah of Sind." It must be recollected, however, that the Musalmáns had been the rulers of Sind for more than two centuries before the destruction of this city.

While calling the ruined city "Brahmanabad," Mr. Bellasis also calls it "Bambra-ke-Thúl," and adds that "*Bambra* is a name frequently applied to old ruined cities [not to this one only] in Sind," and that "Thúl" means a tower or bastion. Here he is in error: the word is the 'Arabic word *tall*, a heap, mound, or hillock; and this word is in common use—"Tall-al-Kabír" of Egyptian fame for example.

With Bellasis's account before him, apparently, Cunningham ("Ancient India," p. 263) makes out Hwen Thsang's chief city of middle Sind "O-fan-cha," to have been called "*Bambhra-ka-Tul*, or the Ruined Tower" ["*O-fan-cha*" is the Chinese for "ruined tower" perhaps], or simply Banbhar, which according to tradition, was the site of Brahmanwás or Brahmanábad." Here it will be noticed how Bellasis's words and meaning have been changed. The latter says *Bambra*—not "Bambhar" nor "Bambhra"—is frequently applied to old ruined cities in Sind, not to "Brahmanabad" alone.

Cunningham continues: "In the middle ages, under Hindu rule, the great cities



because we know of a certainty, that Maṇṣūriyah was not in existence when Muḥammad was recalled from Sind, but was subsequently founded near Bahman-no; and some state that it was even founded by his own

were Saduśān [what of Ptolemy? See his "Ancient India" page 266], Brāhmana or Bāhmanwā, and Nirunkot. \* \* \* Close to Brāhmanwā, the early Muhammadans founded Mansura."

He and some others say, that "Nirunkot" is "Haidarābād," meaning, possibly, that it was founded on the site of the first named place.

In another place (pp. 272-273) the same writer says: "Mr. Bellasis's measurement of *Bambhraka-thūl* [sic] was within a few yards of four miles. \* \* \* I conclude that the great mound of Bambhraka-thūl represents the ruined city of Mansura, the capital of the 'Arab governors of Sind. The Hindu city of Brāhmana or Brāhmanābād must therefore be looked for in the neighbouring mound of ruins now called Dilura, which is only  $1\frac{1}{2}$  mile distant from the larger mound." This may be reversed, I think; for the 'Arabs are more likely to have had a small and compact fortified town than one with four miles of wall to defend. But we are plainly told by the Balāziri, quoted farther on, that Maṇṣūriyah was built two *farsakhs* distant from "old Bahman-ābād," which is equal to over six miles. What is referred to as "the ruined city of *Depur*, 5 miles in another direction," is more likely to be the site. It lies to the north-eastwards of Maṇṣūriyah.

Major-General C. R. Haig, for many years in the Survey Department in Sind, in an article on "Brahmanabad," in the Journal of the Royal Asiatic Society for 1874, says: "Cunningham thinks O-fan-cha of Hwen Thsang (which Stan. Julien renders *Avanḍa*) to be Brahmanabad, but a Buddhist would avoid Brahman abominations." This last is assumed, of course, on account of the supposed 'r' in the name which is entirely a modern addition. If Buddhists would avoid "Brahman abominations" they would probably avoid a Brahman name also for their city.

This same word, "*avanḍa*," is also mentioned in the extracts from the "Si-yu-ki" xvi, by the Revd. Prof. Beal, contained in the same volume of the Journal above mentioned.

Cunningham further adds, that "the date of *Dilu Rai* is doubtful. M'Murdo has assigned A. H. 140, or A. D. 757, as the year in which *Chhota*, the brother of *Dilu*, returned from Mekka, but as Mansura was a flourishing city in the beginning of the tenth century, when visited by Masudi and Ibn Haukal, it is clear that the earthquake cannot have happened earlier than A. D. 950 [here he is near the mark: 339 H. is 950 A. D.]. \* \* \* But it is difficult to believe that there were any Hindu chiefs in *Bāmana* during the rule of the 'Arabs in Mansura [See what the "Masālik wa Mamālik" says on this, page 196]. \* \* \* Mansura must have been founded on the site of Brāhman-ābād, which must have been destroyed by an earthquake."

This too is stated after what the Balāziri has chronicled, and after, himself, saying that Mansura must be looked for at Dilura a mile and a half away from it. I may also mention that, even in the time of Sulṭān Nāṣir-ud-Dīn, Kabā-jah, 607-625 H. (1210-28 A. D.), there were no less than seven Hindu Rānās who were only tributaries to him, as in the time of the 'Arabs without doubt, and that one of them is named "Jasodhan Akrah or Akarah of Min Nagar in the district of Bāmbharwā," and another "Chauṣar of Dewal," or Lār—Lower Sind. See "Tabakāt-i-Nāṣiri also, page 614.

Rennell, D'Arville, and Vincent, all three, placed Bahman-ābād within four

son. It is strange that this new name applied to Multán was also unknown to the 'Arab writers. See what the Balázirí says on this subject farther on; and, moreover, the Khalifah Manṣūr did not succeed to the

miles of Thaṭṭah; but Elliot, after stating that "there seems no reason to conclude that Bráhmaṇábád or Báhmaṇábád was founded by the Persian king [he was not king at the time], Bahman, upon his invasion of Sind," tells us that "his city is expressly said to have been built in the province of Budha [this is what he sometimes writes Nudha, and is correctly, Búdah, described at pages 207, 8, and 9] which never extended so far as the Indus." At page 78 he tells us, that "Mansúra" [which he also says was close to "Bráhmaṇábád"] is "on the west of the principal branch of the Mihrán;" and at page 370, that, "we may rest assured that it was on the eastern side of the Indus." Again, at page 83 he says, "from Multán to the vicinity of Mansúra the country is occupied by a warlike race called *Nadha*, and at page 106, that Bahmanábád was founded by Bahman in Budha" which is "supposed to be Mansúra." At page 189, also, quoting from the "Chach-náma," where he writes the name "Brahmanábád or *Báin-wáh*," he has the following note:—"The real name of this place was *Bahmaná* or *Bahmanoo*." At page 34 he had previously called it "Bámiwán," and at page 61 "Bahmaná Mansúra." After all this, and in several places calling it by its correct name, and indicating its correct position, he winds up with "we may fairly consider that Brahmanábád [with the extra 'r'], after being immediately succeeded by the 'Arab capital, is now represented by the modern Haidarábád." However, all his contradictions of his own quotations, even when correct, and all his speculations on this subject, based, apparently, on the supposition that the Mihrán of Sind always flowed west of Haidar-ábád in nearly the present channel of the Indus, have been refuted by the discovery of the ruins of Bahman-nih, Bahman-noo or Bahman-ábád, close to the west bank of the principal channel of the great river, as the old geographers and historians had clearly stated it was. The value of other similar speculations of his may be judged of accordingly. See note 147

Crow, who, in the last century, was the Honourable East India Company's Agent at Thaṭṭah, also falls into error respecting Bahman-no or Bahman-ábád, as well as "Tatta being Debal Sindý." He says: "Brahminabad, called by the natives *Kulan-kote*, the ruins of which lie four or five miles to the south-west of Tatta," etc.

Dr. J. Burnes ("Visit to Sind," page 133), and Sir A. Burnes, following Crow's statement, also considered "*Kullan Kot*, near Tatta" to be "Brahmanabad." The correct name of the place they thus mistook for Bahman-no or Bahman-ábád, is *Kalyán Kot—kalyān*, in Sanskrit, meaning 'prosperous,' 'happy,' etc.

Tod (Vol. II, page 229, note §). among other wild assertions, actually tells us that "Omar, in the first century [the Khalifah 'Umar, died in 23 H. i. e. 643-44 A. D.], had established a colony of the faithful at *Bekher* [as he spells Bakhar], afterwards *Mansooria*;" while a few pages farther on (233), he says, "the celebrated Caliph Al Walid was the first whose arms extended to the plains of India, and one of whose earliest conquests and chief positions, was Arore, the capital of Upper Sind." At page 269 he says: "the ancient capital of Sind was *Mansoor*, better known to the Hindus as *Rori Bekher*." At page 310, he states, that, "The islandic Bekher, or *Mansoor* (so named by the lieutenant of the Caliph Al Mansoor) is considered as the capital of the Sogdi, when Alexander sailed down the Indus;" and he also supposes that "the Sogdi and Soda [the Sodah tribe] are the same. At page 93 of his first volume, he states, that "the Soghdí country is Dhat in the desert."

**Khilāfat** until some forty-two years after the death of Muḥammad, son of Kāsim, the conqueror of Sind.

At page 312, we have "The great Pūar [Pramārah] sovereignty, of which Arore or the insular Bekher [they are all one to him], was the capital, when Alexander passed down the Indus." Again, at page 332, we have: "On the island of Bekher there are the remains of the ancient fortress of *Mansoorā* named in honour of the Caliph Al Mansoor, whose lieutenants made it the capital of Sind on the opening of their conquests [it was "Omar" at page 229, but Al Walid at page 233]." At page 243, he says, that, "on the final conquest of Sinda the name of its capital, *Arore*, was changed for *Mansoorā*;" while at page 449 of the same volume we have the following. Referring to abandonment of Sinda by the lord of Bamunī, he says, in a note, "'the lord of Bamunī,' in other places called *Bahmanwassō*, must apply to the ancient Brahminabad, or *Dewal*, on whose site the modern Tatta is built."

In vol. I. p. 217, he had previously stated, that, "Sinda being conquered by Omar, general of the Caliph Al Mansoor, the name *Minagara* was changed to *Mansoorā*;" but, after that again, at page 243, he says: "I had little doubt that *Minagara* was the *Suminagara* of the Yādū Bharejāhs. \* \* \* On every consideration I am inclined to place it on the site of *Sehwan*."

Here are no less than nine or ten statements respecting Mansūriyah, all different, and all totally incorrect; but see note 111 for still greater errors.

McMurdo is the only European writer who, before the discovery of the actual site of Bahman-no or Bahman ābād, nearly fixed on its right position. He placed it on the "Purān" [*purānah* signifies 'old,' 'ancient,' etc.] afterwards called the Lohāno Dhoro, but he calls it, in error, the "Lohāna Darya," which was "at a short distance from where it separates from the Purān."

He was mistaken, however, respecting the period of the destruction of Bahman-ābād or Bahman-no in supposing it to have occurred about 140 H. (757-58 A. D.).

The most pertinent observations on the subject of Bahman-ābād are those of the Sayyid, Ṣadr 'Alī Shāh of Thaṭṭah, who was consulted by Bellasis respecting the period of its destruction. He says, that "the city of Bahman-ābād appears to have been founded before the Hindū dynasty of the Brāhmins [yes: a very long time before], which commenced in the first year of the Hijri or A. D. 622, [this is incorrect: Sihrás Rā'e fell in battle with the 'Arabs at the close of 23 H.—October, 644 A. D.]. \* \* \* and that Qhagh, the first of the Brāhman kings, subdued among others, "Agher [Akham, the Lohānah of the Qhagh Nāmah], chief of Bahman-ābād"

This is the Agham, *Lohāna* of Elliot. The Lohāno Hindū race—called "Lohānah Jāts in the Qhagh Nāmah—"are," he says, "the most influential tribe in Sind, and all wear the Brahminical thread." (Vol. I, p. 362). To suit certain other incorrect theories, he afterwards turns these Lohāno Jāts into "Lohānī Afghāns"? It is only since the time of Aurang-zob-i-'Alam-gir Bādshāh, when considerable changes were made in the mode of writing, that the initial letter of their name, which is, correctly, Nūhānī, they being descendants of Nūh, son of Ismā'il, began to be written by Hindūstānī writers, Lūhānī, with 'l' for 'n,' and by those who did not understand the Pūṣhto letter 'rn,' Lūhānī; and they do not "wear the Brahminical thread." The Lohānah (or Lohāno as the Sindīs write and say) *Baniyās* till flourish in Sind, but they have not, even yet, grown into Nūhānī Afghāns.

AL-IDRÍSÍ says: "Manṣúriyah is surrounded by a branch of the Mihrán, although it is at a distance from the river. [In another place he also says, that it is a mile square each way.] It lies west of the principal branch of the river. \* \* \* Manṣúriyah was founded at the beginning of the reign of Abí Ja'far-al-Manṣúr, of the Baní 'Abbás. This Khalifah gave his name to four different cities: the first was Bagh-dád in 'Irák, the second, Manṣúriyah of Sind. \* \* \* It is a great, populous, and rich city, and carries on a considerable trade. The buildings are constructed of burnt bricks, tiles, and plaster. \* \* \* The name of the city in the Hindí [the Sindí dialect of the Prákrit ?] language is Mír-Mán [ميرمان]. This seems to me to be an error in the MS., and it is considered one of the dependencies of Sind, like Multán, Sharúsán [Sív-istán, the modern Sihwán], etc., etc.

ZAKARÍYÁ, THE KAZWÍNÍ, who, as before mentioned, quotes chiefly from the work of Muṣ'ir bin Muhalhil, who wrote in 331 H. (942-43 A. D.), says: "Manṣúriyah, so called after the second 'Abbási Khalifah, is also styled Manṣúriyah-i-Šání, or the Second Manṣúriyah, and a branch of the Mihrán encircles it. It is very hot, and has many fleas, but it is a place of considerable size, and has good and sweet water."

IBN AL-WARDÍ-AL-KARŠHÍ, likewise says, that "it was one of four cities to which Abí Ja'far-al-Manṣúr, the 'Abbási Khalifah gave his name of Manṣúr,<sup>106</sup> the others being Baghdád in 'Irák, Al-Maṣīṣat on the sea of Shám [Syria], and Al-Ráfiḳat in the Diyár-i-Muẓar."

At page 187, in his own extract from the Qhaḥ Námah, "the Jats of Lohána" are mentioned, also, that they consist of "Lakha and Samma," and that "they plundered within the territory of Debal." The Puránah, one of the old channels of the Mihrán of Sind or the Hakrá, is called the Lohána Dhoro after them to this day.

Tod, in his "Rajas'than," says (page 320): "The Lohana, were formerly Rajpoots [fancy Elliot's Afgháns!], but betaking themselves to commerce, have fallen into the third class. They are scribes and shop-keepers, and object to no occupation that will bring a subsistence, and as food, excepting their cats and their cows, they will eat anything." See also Burton's "Scinde," Vol. I, p. 236.

Šadr 'Alí Sháh further observes, that, "the city must have been ruined before the expiration of the fourth century of the Hijrah, or about 1020 A. D. [on the 26th April, 1020 A. D., the year 411 of the Hijrah commenced], because Qhhotah, Amarání, brother of Dilorah, Amarání [Dilú Rá'e], who departed to Baghdád, on account of his brother's injustice, where he embraced Islám, married the daughter of a celebrated 'Arab, and returned with her into Sind before the expiration [before the middle?] of the fourth century, along with a number of other 'Arabs, among whom was the Sayyid, 'Alí Músá." He evidently meant, before the middle of the fourth century. He is rather too late by about thirty or forty years; while McMurdo is too soon by nearly two hundred and fifty. The fourth century of the Hijrah commenced on the 24th August, 1009 A. D.

<sup>106</sup> It is used as an adjective, as is the Past. Part. of نصر, signifying, 'aided,' 'defended,' 'victorious,' 'conquering,' etc.

I will now relate what these writers say respecting the rivers, and the places on or near their banks.

All that IBN K̲H̲URDĀD-BIH says is, that, "from Barmāsir [برماسير] <sup>107</sup> to Debal is eight days' journey; and from Debal to the junction of the river Mihrán with the ocean is two *farsangs*."

AL-MAS'ŪDÍ says: "The Mihrán of Sind issues from sources well known, situated in the *kohistán* or mountain tracts of Sind, the country of Kinnanj, the territory of Búdah [بوده—or بۇدده—Bauúdah in one MS.], the territory of Kash-mír, and Kandhár [Kandhárāh or Kandháro ?], <sup>109</sup> and Táfán [طاقين—Tākin—also طافن—Tāfn—and الطاقه in some MSS., which may be Aṭ-Táfah, or Aṭ-Tākah, or even Aṭ-Tākar], and flows on towards Múltán, where it receives the name of "Mihrán of Gold," the same as the word Múltán signifies [!] the "Frontier of Gold."<sup>110</sup> \* \* \*

"From Múltán the Mihrán takes its course through the country of Maṣúriyah,<sup>111</sup> and near the territory of Debal falls into the sea. \* \* \* It forms many inlets and creeks, such as the creek or estuary of Šind-búr or Šand-bur [صندبور—Šand-púr ?] in the country of Bāghir [باگهر—Wāghir, 'b' and 'w' being interchangeable].<sup>112</sup> \* \* \*

"The Malik of Hind is the Balharí [البهري]; and the Malik of Kinnanj, who is one of the Maliks of Sind, is Búdah [بوده—or Bauúdah بۇدده—or Barúzah, بروزه—or Nauwarah نوره—in as many different

<sup>107</sup> In the text of M. C. Barbier de Meynard this name is written Nármašhírat (نارمشیره); and in Elliot's extracts from the same author, it is "Narmasírá." The name in Ibn Hauḳal is as I have given it above; and it is a well known town of Kirmán, and is repeatedly mentioned down to modern times.

<sup>108</sup> Thus in the original, but Elliot (p. 21), turns it into "Banúra," and renders the rest of the passage as follows: "and from Kashmir, Kandahár, and Táfán; and at length running *into* [sic.] Múltán, it receives the name of Mihrán of gold, just as Múltán means boundary of gold." Did they find a "house of gold" in the river too?

<sup>109</sup> Not Kandahár certainly, eight degrees farther west, which was not known by that name at the period in question: it was then styled Bál-yús.

<sup>110</sup> The word مروج—meadow—is also, without doubt, a mistake for فرخ. It was probably written without points in the original copy of the text quoted, and that *farḳh* is meant, the statements which follow fully confirm. See note 97.

<sup>111</sup> Mas'údí must be wrong, of course, although he visited these parts in 331 H. (942-43 A. D.), and wrote from personal observation; for does not Tod, who was never there, tell us in his "Rajas'than," that "the remains of the ancient fortress of Mansoorā are on the island of Bekher"? See note 105, page 204.

<sup>112</sup> See Burnes' "Travels," vol. I, page 308. There was an old fort hereabouts, swallowed up during the earthquake of 1819, called Sindrí or Sandrí. It lay on the east or Kachchh side of the estuary of the Hakrá, Wahindah, or Sind-Ságar.

MSS., the Búdhiyah—بوديه of the *Chach Námah*], which is the title of all the Maliks of Kinnauj. There is likewise a town called by this name, and at present it is within the pale of Islám, and is among the dependencies of Múltán.<sup>113</sup> From thence [Búdah] issues one of the rivers which together form the Nahr-i-Mihrán of Sind. \* \* \* This Búdah, who is the Malik of Kinnauj, is the enemy of the Balhari, the Malik of Hind. The Malik of Kandhár [Kandhára or Kandháro before noticed], who is one of the Maliks of Sind and its hill tracts, rules over the territory of جچج or جچج [Jachch or Jachchí, the tract lying between Uchchh and Kandhára or Kandháro, a small territory then dependent on Múltán. Jachch Wá-han, once its principal town, is still in existence]. Out of it comes the river Rá'id [رايد],<sup>114</sup> one of the rivers which go to form the Mihrán of Sind. Kandhár [Kandhára or Kandháro] is called the country of the Rahbút [in the original, رابوط—Al-Rahbút, and also Al-Rahyút—راهيوط—and, no doubt, meant for Ráj-put—راجپوت]. Another, the third of the five rivers, is called Hátíl [هاتيل],<sup>115</sup> and comes from the mountain tracts of Sind, and flows through the country of Rah-bút or territory of Kandhár [Kandhára or Kandháro]. The fourth river of the five comes from the territory of Kábul and its mountains,<sup>116</sup> which form the frontier or boundary of Sind towards كابل.

The Wágirs are still well known in the tracts between Lower Sind and Kachchh, and Surath or Káthiáwár (vul. "Kattywar"), and have given much trouble at different times. Sind-búr, or Sand-búr was certainly in Kachchh. See also the old 'Arab map, page 213.

<sup>113</sup> This distinctly shows in what direction this Kinnauj was situated, and that it has nothing whatever to do with the celebrated city of that name on the Káli Nadi, near its junction with the Ganges. See also note farther on.

<sup>114</sup> Elliot has "*Hahaj*" but for the purely 'Arabic letter ج to appear twice in an Indian word is impossible. The part here referred to lay on either side of the Hakrá, adjoining Jachch on the north. The name still remains in Kandhára, or Kandháro in the Sindí dialect, in the south-west corner of the Baháwal-púr state adjoining Upper Sind, the "Kundairoh," "Kundeara," and "Kandera" of as many different maps. It lies on the east bank of the old channel of the Hakrá, near its western branch, called the Rá'in or Rá'íní, the "*Raines Nullah*" of the maps, respecting which more will be found farther on. Jachch or Jachch Wá-han, appears in the maps as "*Jujja*." The petty ruler referred to in the text above was evidently one of the Ránás subject to the 'Arab rulers of Múltán. As late as the time of Sulţán Násir-ud-Dín, Kabá-jah, seven of these Ránás were tributary to Múltán, and Uchchh.

The word here given can only refer to the Rá'in branch of the Hakrá or Wahindah. See note 120, page 209.

<sup>115</sup> This appears to be the same word, with the addition of another letter, as in the extract from Bú-Rihán, who says: "The river Knj or Kaj, which falls from the hill range of Bhátíl." See note farther on.

<sup>116</sup> This cannot refer to the river of Kábul and its tributaries, since the word.

[Bust?], Ghaznín or Ghaznih, دزمن [which may be Darghún, Zara'ún, or Daza'ún—its whereabouts or what the correct word may be, I will not venture to speculate on; one copy has نقش instead, and an additional word نغبرا ], ar-Rukhāj, and the territory of Dáwar [دوار—also داوب and داوب ], which is the frontier of Sijis-stán. Another of the five rivers comes from Kash-mír, which is also part of the country of Sind [!].”

“The territory of Búdāh [بوده ],<sup>117</sup> Malik of Kinnauj, extends to

بست must refer to بست—Bust—on the Hilmand; and if so, shows that mighty changes have taken place in this direction since the Mas'ūdī wrote. All the rivers of the parts here referred to, now flow south-westwards, and empty themselves into the lake of Zarang. The only streams that come from anything like the direction of Ghaznín and Bust are the Gumal and its tributaries, and the streams from the direction of Kalát-i-Nighárah, but the latter rise some two hundred miles south-east of Bust on the Hilmand. It will be noticed how many rivers are said to go to form the Mihrán, which do not refer to the other rivers of the Panch Nad or Panj Ab. I have elsewhere mentioned, that, in former times, the Ab-i-Sind must have been joined by some considerable tributaries from the westwards; and, from my geographical inquiries, it is evident to me, that the river of Kurma'h (vul. “Kurram”), and its tributary the Gambilah, which still unites with it, formerly sent a greater volume of water into the Ab-i-Sind than at present. It is said, that, previous to the time of Amír Timúr's invasion of Hind, in 801 H. (1398 A. D.), the country around Laka'í of the Mar-wats was a vast lake. Lower down again the united waters of the river of the Jzioba'h and the Gumal used, likewise, to contribute a considerable body of water to the main stream in ancient times; and, doubtless, minor streams, now changed and dried up or diverted, used to contribute their waters, as well as the rivers lower down, from the southern Afghánistán by Siwí, the course of one of which was changed by an earthquake in Akbar Bádsháh's time, as well as other tributaries from the Balúghistán, which united with the Ab-i-Sind when it, or a branch of it, flowed westwards from near Rújān, as explained in the account of that river further on. I believe that a considerable river flowed through what now constitutes the Bolán defile or pass, respecting which I have more to say presently.

In Vol. II of his “Archæological Reports,” page 27, Cunningham, strange to say, “identifies” Ptolemy's “Sabbana” as “the modern town of Zhobi, at the junction of the Zhobi and Gomal rivers. The *Saparnis* would therefore be the Zhobi river, or perhaps the Gomal itself.”

The only difficulty would be where to find this “modern town of Zhobi.” By “Zhobi,” I suppose he refers to the river of the Jzoba'h or Jzioba'h Dara'h in the Afghánistán, but such a town as Zhobi does not, and never did, exist. See also pages 26 and 32 of the same “Report.”

<sup>117</sup> I ought to notice here, that, although the 'Arab writers mention the name of Mihrán, and sometimes, Mih'ran Rúd, as if the Ab-i-Sind, above and immediately below, Multán, was so called; yet they did not mean it to be so understood, as here shown, and as subsequently confirmed. They referred to what went to form the Mihrán of Sind, which consisted of all the rivers from the Ab-i-Sind to the Qhitáng. After all had united they obtained the name of “Mihrán of Sind,” and this name it

about one hundred and twenty square *farsangs*, each *farsang* being equal to eight *mīl* [miles].<sup>118</sup> This Malik has four armies, according to the four cardinal points, each consisting of 700,000 or 900,000 men [!]. The south army defends the territory from the Balharī, Malik of Maukīr [before stated to be Malik of Hind]; while that of the north is for the purpose of carrying on war with the Malik of the territory of Múltán [consequently, it, Kinnauj here referred to, must be *south* of Múltán], and with the Musalmáns, his subjects, who are established on that frontier; while the other two armies are sent wherever an enemy shows himself."

"When all these rivers [five are referred to] have passed the "Gate of the Bait or Receptacle of Gold," or Múltán, they unite between it and Maṇṣūriyah<sup>119</sup> into one stream, at a place called *Dosh-i-ʿAb*<sup>120</sup> [lit. Meeting-place of Waters, or Waters-Meet, from the Tájzik or Persian '*dosh*, '—'meeting,' 'coming into contact,' etc.], which flows towards the town of Alror [الروړ] or Aldor—الدر,<sup>121</sup> which lies on its western

bore, until it finally emptied itself into the ocean. The ʿAb-i-Sind or Indus, with its affluents was one tributary, and the Biáh, with its affluents, the Rúd-i-Sind wo Hind as it is called, another, which united with the Hakrá or Wahindah and its affluents, and formed the Mihrán of Sind as above described. Consequently, the ʿAb-i-Sind or Indus, and the Rúd-i-Sind wo Hind, were really tributaries of the Hakrá or Wahindah; for, after the ʿAb-i-Sind or Indus deserted the other, it still remained the Mihrán of Sind; and this is borne out by the statements of all the 'Arab and native writers, as will herein appear. See note 156, page 218.

<sup>118</sup> A vast area truly! Even if we compute it at 44 square *farsangs* of 8 miles each, 26,600 square miles is the result. The *farsang* generally was about three *mīl*, each *mīl* being equal to 4,000 *gaz*, the *farsang* being 12,000, and each *gaz* being equal to 24 fingers' breadth measured sideways, or six clenched fists. The Sindī *farsang*, it will be noticed, is stated to be eight *mīl*. See note 90, page 190.

<sup>119</sup> Tod, Vol. II, page 229, note to "Arore," says: "The remains of this once famous town I had the happiness to discover by means of one of my parties in 1811." Any one, unacquainted with the history of these parts, would imagine from this, that its site had remained unknown up to the period of this wonderful discovery—"on the island of Bekher," where Aror never stood.

<sup>120</sup> The place of junction here referred to lay near to Šāhib Gaph and Baghlah of the present day, about seventy-two miles south-west of Uchohh. When the Mas'údí wrote, the branch of the Hakrá which flowed past Aror on the east, had not, according to the tradition, been as yet diverted. Elliot's editor (Vol. I, p. 23), unacquainted with the meaning of '*dosh*,' supposed it to be "Dúáb," as he writes Do-ábah.

<sup>121</sup> The '*al*' in this word, as here written, and by all the old geographers, is not, and must not be mistaken for, the 'Arabic article *al*, because the name Alor or Aror was the Hindī name centuries before the Musalmáns had any acquaintance with it, and it may be, and is, written and styled Aror, with '*ar*' as well as with '*al*.'

The derivation of the word Rūphī is evidently derived from the Sanskrit रुफ—



[sic] bank, and is a dependency of Maṣūriyah, where [*i. e.* at Alror or Aldor] it receives the name of Mihrán. There [but, in one copy; "Farther on"] it separates into two branches, and both these branches of the great river, styled the Mihrán of Sind, fall into the sea of Sind [or Hind] near the town of Shágarah [شَاغَرَه—Ságarah?], one of the dependencies of Maṣūriyah, a distance of two days' journey from the town of Debal.<sup>123</sup> \* \* \* After Tiz of Mukrán [eastwards], the littoral of Sind commences, where are the mouths of the Mihrán or Nahr of Sind, the principal river of that country. In this part stands the town of Debal; and it is [near?] there that the coast of Hind joins that of Barúz (برُز), where they make the spears called *barúzi*."

"The territory of Maṣūriyah contains 300,000 villages and estates [what we style *manzu's* in India probably], lying in a fertile tract of country, well planted and cultivated. This territory is continually at war with a people called Med, originally from Sind, and also with other races.

*rúr*, in reference to its situation on the rocky limestone ridge, and the signification of which word is, 'rough,' 'stiff,' 'rugged,' 'hard,' etc. See my "NOTES ON AFGHĀNISTĀN," etc., page 326, note ¶.

Mr. A. W. Hughes, of the Bombay Uncovenanted Service, in his "Gazetteer of the Province of Sind," p. 678, says it is "the ancient Loharkot," but what, or whose, "Loharkot" he does not inform us, nor does he give us his authority; and yet, on the next page, says it was founded "by one Saiyad Rukandin [Rukn-ud-Dín perhaps is meant] Sháh in H. 698 (A. D. 1297).

Cunningham, on the other hand, in his "Ancient Geography of India," says (p. 258): "The true name of Alor is not quite certain. The common pronunciation [of English writers? but how is it written?] at present is Aror, but it seems probable that the original name was *Rora*, and that the initial vowel [here the "initial vowel," so called, is the first letter of the alphabet, and a consonant] was derived from the Arabic prefix *Al*, as it is written *Alror* in Biladûri, Edrisi, and other 'Arab authors [and also "*Aldor*," with '*a*,' as given in Elliot's work]. This derivation is countenanced by the name of the neighbouring town of *Rori* [here a letter is left out to support the theory], as it is a common practise in India thus to duplicate names. So *Rora* and *Rori* would mean Great and Little *Rora*. This word has no meaning in Sanskrit [as I have shown above], but in Hindi it signifies "noise," "clamour," "roar," and also "fame." It is just possible, therefore, that the full name of the city may have been *Rora-pura*, or *Rora-nagara*; the "Famous City." Why not, at once, call it the "*Roaring City*"?

But the "*Hindí*" word here quoted by him happens to be Sanskrit रूढ; and, unfortunately for this "Famous" theory, the name is not written *Rori* by the people of the country, but Rúḥí—رُحِي; and as ر is interchangeable with ل in Hindi and other dialects, it is also called Lúḥí as well as Rúḥí. There is another word رُی (رُی)—*rod*, of the same derivation, signifying, 'stone,' 'rock,' or 'a fragment' of either. The period when Rúḥí was founded will be mentioned farther on.

<sup>123</sup> Compare the map taken from the "Masálik wa Mamálik" at page 213.

“*Maṣūriyah* and its dependencies, like *Multán* and its territory, is a frontier. The name, *Maṣūriyah*, it derived from *Maṣūr*, son of *Jamhūr*, who had been placed there by the Banī ‘*Ummiyah*, as *Hākim*. \* \* \* *Sind* is the territory nearest the Musalmán dominions: *Hind* lies more east. *Nofir*, son of *Fūt*, son of *Hām*, son of *Núh*, at the head of his descendants and followers, took the direction of *Sind* and *Hind*, where his posterity multiplied, and were remarkable for their gigantic stature. They established themselves in the territory of *Maṣūriyah*, a dependency of *Sind*. This confirms the tradition, that *Hind* and *Sind* had been peopled by the descendants of *Nofir*, son of *Fūt*, son of *Hām*, son of *Núh*.”

THE ISTAKHARÍ says: “*Samand* is a small city [or town] situated like *Multán*, on the east of the river *Mihrán*. Between each of these places and the river the distance is two *farsangs*.<sup>123</sup> \* \* \* The town of *Alor* [آلور] is about the size of *Multán*. It has two walls [سور], is situated near [not on, it will be observed] the *Mihrán*, and near the borders of *Maṣūriyah* [the territory]. *Nírún* is about half way between *Debal* and *Maṣūriyah*. \* \* \*

“The river of *Sind*, which is called the *Mihrán* of *Sind* [lower down stream], is said to issue from a mountain range in which several of the tributaries of the *Jihún* rise.<sup>124</sup> The *Mihrán* passes by the borders of *Samand* [the *Samandúr* of the *Ḳazwíní*, who quotes this work]<sup>125</sup> and *Alor* [or *Aldor*] from the neighbourhood of *Multán*, and from thence to *Maṣūriyah*,<sup>126</sup> and farther onwards, until it unites with the ocean to the east of *Debal*. Its waters are very pleasant [sweet].<sup>127</sup> It is said that there are crocodiles in it as large as those of the *Níl* [Nile]. It rises and inundates the land just like that river does, and after the waters subside seed is sown in the same manner as I have described in the account of *Miṣr* [Egypt]. The *Sind Rúd* [or River of *Sind* and *Hind*]

<sup>123</sup> Compare the *Mas'ūdī's* statement, pages 189, 90. If the *Sindī farsangs* before mentioned, of eight *mīl* to each *farsang*, the distance would be sixteen English miles, but, according to the more correct computation, about six.

<sup>124</sup> See my “NOTES ON AFGHANISTÁN,” etc., page 563, note \*.

<sup>125</sup> See page 213 and farther on, also the old map from *Purchas*.

<sup>126</sup> *Elliot* has, at page 30, the following:—“The *Mihrán* passes by the borders of *Samand* and *Al Búr* (*Alor*) to the neighbourhood of *Multán*,” etc. It is impossible for the river to have flowed backwards from “*Al Búr*” to *Multán*. It is exactly contrary.

<sup>127</sup> Compare this with the statement in the “*Masálik wa Mamálik*” and *Ibn Haukál*, farther on.

*Háfiz Abrú* says the *Sind* river or *Ab-i-Sind* runs into the territory of *Maṣūriyah*, its course being from north to south, and, at the end, turning towards the east.

is about three stages from Multán. Its waters are very pleasant [sweet] even before its junction with the Mihrán."

This statement is important, for here we have two large rivers, the Mihrán and the Sind Rúd distinctly mentioned. The following, too, is remarkable, and shows what changes have taken place to the westwards, respecting which I shall have more to say presently. He says: "Mukrán is mostly desert, and has but few rivers. Their waters flow into the Mihrán on both sides of Maṣūriyah."<sup>128</sup>

"The cities and towns of Sind are Maṣūriyah, Debal, Nírún, Kálwí [or Kálarí], Anarí, Bálwí [or Bálarí], Maswáhi, Bahraj [بحراج of the old 'Arab map,<sup>129</sup> generally written without points], Bániyah, Manjānri [Manjābari of others], Sadúsán [Sharúsán or Síw-istán], Alroz [with 'z'—Alror before],<sup>130</sup> etc. The cities of Hind<sup>31</sup> are Múltán, Jand-rúd [Qhand-rúd?], Basmad, Sindán, etc."<sup>132</sup>

"The distance from Armá'il in Mukrán to Debal is four days' journey; from Maṣūriyah to Debal, six; Maṣūriyah to Múltán, twelve; from Maṣūriyah to Fámhal, eight; between Múltán and Basmid, about two; from the latter to Alroz [Alror], three; thence to Anarí, four, from which to Kálwí [or Kálarí] is two, and from the last-named place to Maṣūriyah one day's journey. Bániyah [بانية<sup>133</sup>—without points] lies

<sup>128</sup> See also the Ḳazwíní's account, page 205. How far Maṣūriyah or its jurisdiction extended at that period may be gathered from Al-Idrísí, who says: "Between Kíz and Armá'il are two tracts of territory touching each other: one, named Ráhuṇ, is a dependency of Maṣūriyah, and the other, called Kalwán, depends on Mukrán." Maṣūriyah comprised all middle and lower Sind.

<sup>129</sup> In the old 'Arab map page 213, it is placed west of Maṣūriyah on the west-bank of the Mihrán. See page 215 and also farther on.

<sup>130</sup> These are the فالوي (Fálúí), ايرى (Írī), بلوي or بلوى (Balúí), Maswáhi, Bahraj, نايته (Náyatah), Manjābari, Sindúsán, and Aror of the "Masálik wa Mamálik."

<sup>131</sup> This clearly shows that the Sind Rúd of the Masálik wa Mamálik map just referred to, is that which flowed between those places.

<sup>132</sup> The Basmad, سريان (Sarián) or سيران (Sirán or Sairán) or سيدان (Saidán), and كنانة of the before mentioned work respectively.

<sup>133</sup> Elliot, "Historians," Vol. I, page 15, has: "From the Mihrán to Bakar, which is the first place on the borders of Hind, is four days' journey." All this is pure surmise; for the word is unintelligible, and, in the Paris copies, according to his own account, is illegible. In them it is نر which may be anything almost. In the printed text of M. Barbier de Meynard it is نكب; yet, even with this before him, Elliot made it Bakar, a place never mentioned by any of the old geographical writers here quoted, because it did not then exist, and this too after translating the additional passage given in this note from Idrísí thus:—"From hence [Bániyah] to Mámhal

between Maṣūriyah and Fāhmal, at one day's journey from Maṣūriyah and from Debal to Manjānri [Manjābari] is two days' journey. From Bāniyah to Maṣūriyah three days' journey; to Fāhmal six days'; and to Debal two."<sup>184</sup>

The MASĀLIK WA MAMĀLIK, which, as I have before mentioned, is, in many places, like Ibn Ḥaukal, differs from him considerably in others. It states that, "From Multān to Basmīd or Samīd [it is written both ways in the original MS.] to the Rūd-i-Sind is three days' journey. Basmīd or Samīd is a small city [or town], and that, and Multān and Jandāwar [جنداور the original has ح but as this purely 'Arabic letter could never occur in a Hindī name, it is probably intended for ج Qhandāwar or ج Jandāwar] are situated on the east side of the Rūd [river] of Multān, each at a *farsakk* distant [but, according to the map of Sind contained in the original MS., they are a long distance east of the river, and in it Multān does not appear, being farther up stream]. Samīd or Basmīd is a city full of wealth and affluence, and is not less [in size] than Multān, and has two walls [دور], placed on either side of the river Mihrān.<sup>185</sup> \* \* \* The Mihrān comes out near Multān, passes the boundary or limits of Basmīd, and Maṣūriyah, and east of Debal unites with the ocean. The Rūd-i-Sind<sup>186</sup> is three days' journey from Multān, and is a pleasant [sweet] river, and unites with the Mihrān Rūd. It is subject to inundation like the Rūd-i-Nīl and has likewise crocodiles."

Here again two great rivers are mentioned, just as Al-Idrīsī states,<sup>187</sup> the Mihrān, and the Sind Rūd or Rūd-i-Sind wa Hind, but the Masālik wa Mamālik goes farther, and adds: "The Jand Rūd [چند رود or چند رود]

and Kambāya the country is *nothing but a marine strand*, without habitations, and almost without water, consequently, it is uninhabitable for travellers."

No doubt the Kunghī *ran* is here referred to, into which Sulṭān Firūz Shāh was led by a treacherous guide, like as Sulṭān Maḥmūd before him, as related at page 80, See also note 105.

<sup>184</sup> Al-Idrīsī states that, "between Bāniyah and Fāhmal (Elliot has "Māhmal" here), and Kambāyah, the country is a salt, marshy shore, without habitation, and almost without fresh water, and therefore it is impassable to travellers." Its position therefore is towards the sea coast and the Kunghī *ran*, or great marsh of Kaqhoḥh, and not as Elliot supposes within fifteen *farsangs* of Aror. See his work, Vol. I, pp. 61, 174, and 367.

<sup>185</sup> The Mihrān here, and the Rūd-i-Multān above, both refer to the Ab-i-Sind, or Indus, as mentioned in the preceding note 117, which see, also note 123.

<sup>186</sup> The Tārīkh-i-Tāhīrī, referring to the Sind Rūd, says it is also known as the Panj-Āb, and below Bakhar is known as the Bahmīn [پنج آب]. See page 216.

<sup>187</sup> He wrote, it must be remembered, in 645 H. (1150-51 A. D.).

*Qhand Rúd* ?—this is a different word from *هنداور* above mentioned] or *Samand Rúd* [ *سند ورد* ] is also a great river, and a sweet, on whose banks stands the city [shahr] of Jand [or *Qhand* ?]. *It unites with the Míhrán Rúd below the Sind Rúd, towards the territory of Manṣúriyah.*"<sup>188</sup>

We have here, therefore, three large rivers. The first is the *Sindhu*, *Ab-i-Sind*, or *Indus*; the second the *Bíáh* and its then tributaries, the *Bihat*,<sup>189</sup> the *Qhin-ab*, and the *Ráwah* or *Ráwí*, which, in those days, passed north-east and afterwards east of *Multán*, and united with the *Bíáh*, some twenty-eight miles to the southward of the last named city, forming the *Panch Nad* or *Panj Ab* of the geographers; and the third river is the *Hakrá*, *Wahindah*, or *Sind-Ságar*, and of which, at the period in question, the *Sutlaj*, was a tributary, as were likewise the *Ghag-ghar*, the *Sursutí*, and the *Chitang*.

I now turn to *IBN HAUḲAL*, who states, that, "*Basmíd* is a small city [*shahrki*], and it, and *Multán*, and *Qhandwár* [in another copy *چنداور*—*Qhand-áwar*] are placed on the east side of the *Rúd* of *Multán*. From each place to the bank of the river will be one *farsang*. *Basmíd*

<sup>188</sup> This is the *Samand* of the *Istakhari* in the only copy available, but the *Kazwí-ni*, who quotes him copiously, says, that the *Istakhari* calls it the *Samandúr*, consistent with *Manṣúriyah* one day's journey, left out in the copy of the *Istakhari* quoted.

sequently part of the word has been lost. See page 51.

It will be noticed from this important statement, that the old 'Arab map here given (and likewise as shown in the map to *Ibn Hauḳal*'s work) does not quite agree with the writer's description. But two rivers are indicated, the *Míhrán Rúd* and the *Sind Rúd*, and, that between what appears as *دور* or *الدور* near their junction, down as far as *حولي* and *سدوسان* but a single river is indicated; while farther east, a line, with five towns on it, runs down to, and includes *حولي* above noticed, and that one of these five is *Basmíd*, and another, *Anarí*, two days' journey from *Basmíd*. The description says, that the *Sind Rúd* [the *Rúd-i-Sind* wa *Hind*—the *Bíáh* and its tributaries] unite with the *Míhrán Rúd* [the *Sindhu* or *Ab-i-Sind*] above *Basmíd*, which is three days' journey below *Multán* and three days' journey above *Aror*; and that the walls of *Basmíd* rise on either side of the *Míhrán*. Further, that the *Samand Rúd* [the *Hakrá* and its tributaries] unites with the other two still lower down towards *Manṣúriyah*, at a place known as *Dosh-i-Ab*. I have not interfered with the 'Arab map, but I have indicated what is meant from the description, which agrees with other old writers, at the right hand side of that map.

<sup>189</sup> There appears to have been another river besides the *Bihat*, *Qhináb*, *Ráwí*, and *Bíáh*, and I have seen somewhere what tributary of one of these four it was, which formed the fifth, but I cannot recall it to mind. Neither the *Sindhu* or *Ab-i-Sind*, nor the *Shuttladr*, were included among the *Panch Nad* or *Panj Ab*, or *Five Rivers*; and to this day, the people dwelling near the junction of the other rivers, including the *Sutlaj*, after the junction, style the united stream the "*Sapt-Nad*," or "*Sat Nad*"—the "*Saptah Sindáwah*" of the *Hindú legends*—or *Seven Rivers*.

is a city full of affluence and convenience, and will not be less [in size] than Multán. It has two walls [بار—*or* باز—sides ?] placed or situated on the banks of the Mihrán Rúd.<sup>140</sup>

"Debal is situated to the east [شرقي—sic in MSS.<sup>141</sup>] of the Rúd-i-Mihrán, and on the sea coast. It is the harbour of that territory. They cultivate the land without irrigation. It is a confined place [تنگ, a word which also means 'barren'], but for the sake of trade people take up their dwelling there.

"Nirún is a city situated between Debal and Maṣūriyah on the road thither, and is situated on the west side of the Mihrán; and Bahraj or Bharaj [بهرج<sup>142</sup>—also written البهرج and بهرج in other copies], Maswāe or Maswāhi or Maswā'i [مسواهي or مسواهي or مسواي], Sindúsán or Sidúsán [سندوسان or سندوسان], and Haníbar [هنيبر] or Halbah [هلبه] or Haliyah [هليه] or Halat [هلات] or Hazah [هذه] are situated on the western side of the Mihrán. Yrí [ايري] or Ydí [ايدى or ايدى] or Andí [اندى]—and Abri—[ابري], and Fálúí [فالوي] or Dálúí [دالوي]<sup>143</sup>, lie on the east side, in such wise, that, in going from Maṣūriyah to Multán, they lie at a distance from the banks of that river.

"Balúí [بلوي or Jalbúi—جلبوي<sup>144</sup>] is situated on the Mihrán, near unto a channel which branches off from the river behind Maṣūriyah [as shown in the map of the Masálik wa Mamálik, just opposite Sadúsán or Síw-istán].

"Fámhal [فامهل] is a city [or town] situated on the nearest border of Hindústán, as far as Šaimúr [سيمور]; and from Fámhal to Mukrán,

<sup>140</sup> In Elliot (p. 37), this description is applied to Alror. He has: "The country [city] of Alrúr is as extensive as Multán. It has two walls, is situated near the Mihrán, and is on the borders of Mansúra."

The text I have quoted is as above, and agrees with the "Masálik wa Mamálik."

<sup>141</sup> In the map to Ibn Hauḳal's text, as in the Masálik wa Mamálik map, Debal is placed *west* of the river. The above, therefore, is palpably a mistake of the copyists. See the map from Purohas.

<sup>142</sup> This is the same place as is mentioned by the Istakḥarí, and by the Balázirí in the account of Muḥammad's advance against Sadúsán, or Síw-istán, the modern Sihwáp.

<sup>143</sup> Such are the variations in different copies. In the text translated by Anderson in the "Journal of the Asiatic Society of Bengal" for 1849, the words are ايري ولدي.

<sup>144</sup> The name is thus written in the map to Ibn Hauḳal's text in the Bodleian Library. It will be noticed, that, in writing, if the upper part of ٢ is rounded a little, as in quick writing, it is liable to be mistaken for ٣; and this last letter, if the upper part is lengthened, as it is very apt to be in MS., may easily be mistaken for ٤. This place is the Kalarí of the Istakḥarí.

to Nudhah [Nudiyah of the Sindíán historians], to the boundaries of the territory of Múltán, all appertain to Sind. Bányah [بانیه] <sup>145</sup> or Nányah [نایه] or Mányah or Mániah [مانیه—but all are doubtful, because the word is chiefly written ناند, without points, and مانه, and even ناینر], is a small city [or town] which 'Abd-ul-'Aziz-i-Ḥabbárl the Kureshí, the ancestor of the tribe who hold Maṣūriyah in subjection, <sup>146</sup> built. Mand [مند] belongs to Hindústán, and there are infidels dwelling therein; and all that has been mentioned belongs to Hindústán."<sup>1</sup>

Then follows the important statement, that, "The junction of the Mihrán with the Sind Rúd [the Biah and its tributaries as elsewhere explained] is below Múltán, but above Basmíd. The Jadd [or Qhand] Rúd [the Hakrá] unites with the Mihrán below the junction of the Sind Rúd, towards Mansúriyah."

Nudiah [ندیه], or Nudiyah [ندیه] <sup>147</sup> is a flat open tract of coun-

<sup>145</sup> It is, from its situation, the same place as mentioned by the Istakhari, and towards the south-east of Maṣūriyah, as shown in the map to the Masálik wa Mamálik. See page 213. It is written without points in the map to the Bodleian MS. See note 163.

<sup>146</sup> That is, the towns dependent on Maṣūriyah and its district, and situated therein. See page 190.

<sup>147</sup> Elliot sometimes renders this "Budh," "Buddha," and "Búdhiya," but says that Idrisi and Ḳazwíní prefer "*Nadha* or *Nudha*," and immediately after [p. 388, vol. I] says: "The old tract of Budh or Búdhiya, very closely corresponds with Kaohh Gandáva," and straightway goes to "Bori or Búra in the Afghan province of Siwistán," and of course, becomes hopelessly confused.

The Borah or table land, so called, of the southern part of the Afghánistán—for there is no town called "Bori," much less "Búra," as he imagined—is out of Sind altogether, and one hundred and twenty-five miles farther north than Gandábah and more than three hundred and fifty miles north of Bahman-ábád.

In a note at page 389 he says: "In the passage above quoted from the *Mujmalu-t-Tawárikh*, Bahman is said to have founded a city called Bahmanábád in the country of Budh. There is a place entered as Brahman in Burnes' map, between Shál and Bori." This shows the utter confusion into which he has fallen. He should have added to the above, that, in the work last quoted, the author says that "this Bahman-ábád is said to be Maṣūriyah by some," and he assigns it its proper position. See Elliot, Vol. I, page 109 as to "Mansúra" and Bahman-ábád, and note 105, para. 18.

I may add, that, Ibn Hanḳál, and the Masálik wa Mamálik, have Nudhah—ندج—at all times; and in changing it to, or reading it as, "Budh," "Budha," and "Budhiya," Elliot may have been under the impression, that it must be correct to do so, if the people were Buddhists, or in support of some theory that required to be bolstered up. See also pages 206 and 208.

It so happens that Nudah or Nudiyah lay on the west of the Mihrán, while Búdah the Búdiyah of the Qhash Námah, lay on the east. See what Wilford, who

try, situated between Túrán [the territory dependent on Kuṣḍár, from which Kandá'il is five *farsangs* distant] and Mukrán, and Multán and the towns of Maṣṣúriyah,<sup>148</sup> and this tract lies to the west of the river Mihrán. From this part *bakhtí* [hairy, double-humped] camels are taken to other parts of the world.<sup>149</sup>

The *Kaṣbah* [bázár town] of the tract called Nudiyah is a place of traders, and they call it Kandá'il.<sup>150</sup> The inhabitants of this tract of country are in appearance like the people of the desert [of 'Arabia], and have dwellings constructed of canes<sup>151</sup> along the banks of the Mihrán, from the boundaries of Multán as far as the sea coast; and they have also grazing lands between the river and Fámhal [farther east, and elsewhere said to be "the first place belonging to Hindústán in that direction"]. They are a numerous tribe. Fámhal, Sindúsán [or Sadúsán, Sihwán of the present day], Samúr, and كمال or كمال,<sup>152</sup> all four towns, have Adináḥ masjids, which the Musalmáns founded.

was far in advance of his time, says respecting these parts in the 9th volume of the "Asiatic Researches," page 225. Búdah or Búdiya has nothing whatever to do with Bráhúís as M. de Goeje, states in his notes to the text of what he calls "Beladorsi" (referring to the Baláziri): they were unknown in that early day.

<sup>148</sup> See pages 189, 90.

<sup>149</sup> Compare this passage in Elliot, Vol. I, p. 38.

<sup>150</sup> The Istakhrí says, respecting Kandá'il, that it was so called after A'il [ايل], a man of that name who subdued it; so here we have the word Kand, as in *Kand-ahár*, and in *Samr-kand* and *Bey-kand*. The word is plainly written قندائيل. With the above very plain statement before him, Elliot persists time after time, in calling the place "*Kandahíl*" and "*Kandhábel*." Cunningham, of course, follows Elliot in the spelling, but he considers that, "Ptolemy's *Badana*, which lies immediately to the north of the rivulet, must be the present Gandáva, as the letters B and G are constantly interchanged. In the books of the early 'Arab writers [according to Elliot's versions, it should have been added] it is always called *Kandá-bíl*." See "Elliot," vol. I, pages 29 and 84, as to its conqueror. It so happens, that Kandá'il is not Gandábah, but stood on a hill, which Gandábah does not. The Masálik wa Mamálik distinctly states, that there is but five *farsangs* distance between Kuṣḍár, the situation of which is well known, and Kandá'il, which is eight days' journey from Maṣṣúriyah, and ten from Multán.

M. Barbier de Meynard's 'Arabic text of Ibn Khurdád-bih, p. 57, contains the same error respecting Kandá'il, and Kuṣḍár, after the same fashion is "Kuṣḍán." See my "NOTES ON AFGHANISTÁN," etc., page 558, note §§.

<sup>151</sup> Because the river was continually altering its course. It was the same when Abú-l-Faḥl wrote upwards of six centuries after; and canes play a great part in the construction of dwellings of all kinds, both for man and beast, in Sind and the Indus valley higher up, up to the present day. The people here referred to are the Sammahs and Jhárijahs (or Zhárijahs) or both.

<sup>152</sup> This word is unpointed and may mean anything. Elliot reads it "*Kambáyá*," but as he reads Kandá'il as "*Kandábil*," we must make allowance, and be permitted



Respecting the distances between some of the places mentioned above, he says: "From Maṣūriyah to the boundary of Nudah [or Nudiyah, as the Sindīs write it] is five stages or days' journeys [*marḥalah*]; from Maṣūriyah to Fāmlal eight; from Multān to Basmīd two; from thence to Alror [الروڑ] or Alroz [الروز]<sup>153</sup> three; from thence to Abārī [ابري] or Irī [ايري] four; from thence to Faldī [فادي] or Fālūī [فالوي] four. From Faldī or Fālūī [the Kalārī of others] to Maṣūriyah one stage or a day's journey; from Debal to Nīrūn four;<sup>154</sup> from Faldī or Fālūī [Faldī before, the Kalārī of others] to Ladān four *farsangs*; and Bāniyah [written Māniāh or Māniyah and in other ways before<sup>155</sup>] or Nāniāh is distant one stage or a day's journey from Maṣūriyah.

The source of the Mihrán, the waters of which are pleasant, is in the same mountain range in which the Jihūn takes its rise. It comes out at [*i. e.*, near] Mūltān, and<sup>156</sup> passes the boundary [حد] of Basmīd Alror or Alroz,<sup>157</sup> and by Maṣūriyah, and falls into the sea to the eastward of Debal. \* \* \* The Sind Rūd, the waters of which are also wholesome, is likewise a great river, and at three stages or days' journey below Mūltān unites with the Mihrán Rūd."

to doubt its correctness. The Gulf of Kachehh and the whole peninsula of Kāthiāwār [vul. "Kattywar"] intervenes, and Kanbhāyat (vul. "Cambay") was not subject to Musalmāns at such an early date as the time of the writer above quoted. Part of Kachehh is doubtless referred to here. The north-west part if it is called Kanḡhār and Kanḡāhar.

<sup>153</sup> Two copies have the *rūd*—الروڈ—instead of Alror—الروڑ

<sup>154</sup> In two copies of the text this name is written Biroz or Birūz [بروز] and Píroz or Pírūz [پېروز] respectively.

<sup>155</sup> See note 105, and pages 212 and 215.

<sup>156</sup> Although Ibn Ḥanḡal calls this river, which is the Ab-i-Sind or Indus, by the name of "Mihrán," it will be noticed that he makes a distinction between it and the "Mihrán Rūd." Had he not done so, we could only suppose that he considered the two other great rivers to be tributaries of this one, but he evidently means the river which "went to form the Mihrán of Sind," as others do, or what he here calls the Mihrán Rūd.

Bū-Riḡān calls the river the Sind until it unites with the others, and the united streams he calls the Nahr-i-Mihrán. See the previous note 117, and the extract from that author at page 221.

<sup>157</sup> This word does not occur in two out of three copies of the text consulted.

See page 213, and also the learned note in Elliot, Vol. I, pages 380-81, from the pen of his Editor, on the subject of "Chand Rūd." He takes it for granted, that the *Qin-āb* always flowed as at present. In the text, page 48, he has another meaning for "Chand." He says "there is some confusion here," and he has made it still more confused.

Another copy quoted by Elliot has: "The Chand Rúd is also a great and pleasant [خوبی] river on whose bank is the city [or town of] Chand Rúd. It falls into the Mihrán below the Sind Rúd towards the territory of Mansúrah." This, however, does not agree with three other MS. copies which I have used, but agrees with the Masálik wa Mamálik just quoted; and, for a town "Chand Rúd" is an impossible name, and must refer to the river, or a town situated thereon.

BÚ-RIḤÁN-AL-BERÚNÍ, says, after noticing the junction of the river of Kábul with the "Nahr-i-Sind:" "The river Bihat, called Jíhlam, on the west, unites with the Ab-i-Qhádrá [the Qhánd Rúd of Ibn Haukál before noticed] at Jháráwar [جهاروار]<sup>158</sup> or Jhára Rúd [جهاررود or] Jandráhah [جندراه] nearly fifty *míl* [miles] above Múltán, and flows past it on the west. Then the Ab-i-Bíáh [!] increases it [by uniting with them] from the east. Then the Yráwah [ایراوة—the Ráwah of the Tabakát-i-Náṣirí—the Ráwí] joins them. The Nahr-ul-Kaj [or Gaj—نهر الکج—in one copy Laj—لج<sup>159</sup>—the upper stroke of the ك being left out, but that letter may be mistaken for ل if not marked thus ك] branches off from the Nahr-ul-Kút [نهر الكوت], which issues from the mountains of Bahátíl [بهاتل], and joins them, after which the Nahr-i-Shutlad [شتلد or Shutladr شتلدر] unites with them below Múltán at a place called Panoh Nad."<sup>160</sup>

<sup>158</sup> In one place in his text, Bú-Riḥán says the Sind is called Wahind; that جندراه or جهاروار refers to the Qhándar Bhág—the Qhándar-Bhágá or Qhin-áb—that the Bíáh flows to the west of Loháwar, and the Yráwah—the Ráwah or Ráwí—on the east of Loháwar.

The Bíáh never yet flowed west of Láhor, within "the range of history," but the Ráwí has, but not very far west of it. It will be seen how he has reversed matters. In another place, as in the text above, he makes the Bíáh unite with the Qhin-áb above or north of the Ráwí, again reversing facts.

<sup>159</sup> His Nahr-ul-Kaj or Gaj, and Nahr-ul-Kút or Gút can only refer to those tributaries of the Hakrá or Wahindah which came from the hills east of Jasal-mír in early times, noticed farther on. In the recently published printed text, in place of this Nahr-ul-Kút we have Naghar Kot—نغر کوت!

The letter here written ج may be meant for چ. Bahátíl is the Hátíl of Mas'údí. See page 206, 7.

<sup>160</sup> Professor Sachan indexes these two simple Hindí words in his printed text of "Alberúni," under the meaningless form of "Pāncanada;" and translates the above passage as "a place called Pāncanada"! A person who had to depend on his translation would suppose Bú-Riḥán had so written it.

The author of the "Lost River" article in the "Calcutta Review" appears, from the following, to have had a confused idea of the Panj Ab or Panoh Nad. He says (page 14): "Thus, too, is solved the difficulty in providing a place for the Satlej among the five branches of the "Panjad," which has compelled modern geographers to transfer that name from the Indus to the Chinab [!]. The latter has

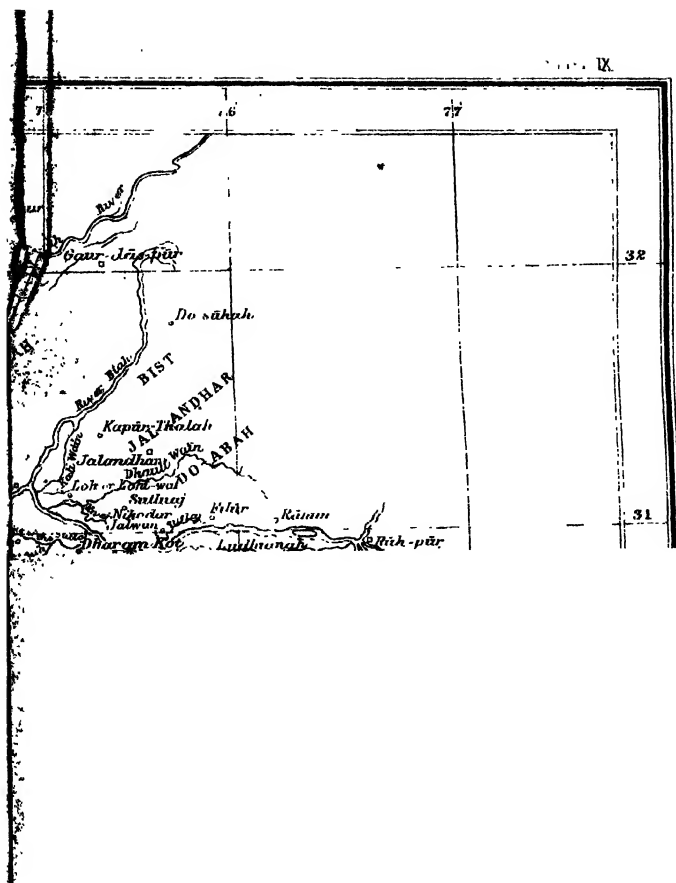
I have entered here just what he says, but there is evidently great confusion; for we know that the *Biáh*—if it is here referred to—never united with the *Qhín-áb* and its tributaries *before* or *above* the *Ráwí*, as is here-stated. Moreover, the mention of "*Sutláj*," rather shows that the copyist wrote the names as he knew them best. \* Indeed, with regard to all the extracts from *Bú-Rihán* contained in the *Jámí'-ut-Tawárikh*, it is difficult to decide which are actually his, and which *Rashíd-ud-Dín's* (the author), because, especially in reference to the river reaching the sea by two channels, which, in those early days it did not do, as I shall presently show, the latter mentions events as if stated by *Bú-Rihán*, which occurred three centuries after his death. I shall also prove that no "*Sutláj*"—*Shuttláj* or *Sutláj*—flowed in the direction here indicated, even at the time that *Amír Tímúr*, the *Gúrgán*, invaded these parts more than four centuries after *Bú-Rihán* wrote.<sup>161</sup>

To continue his account, however, he states, that, "After this, the united streams become a vast river, and during the season of inundation, the waters spread out to the extent of ten *farsangs* in breadth, and swallow up all the other great streams, and the refuse brought down" by no claim whatever to this title, which Burns justly observes (*Travels* III—287) is *unknown upon its banks*. The "*Panjnad*" or "*Panjáb*" is the *Indus* itself. The application of the term to any one river appears to be of late date."

All this is contrary to fact. All those who have dwelt in, and are acquainted with the geography of this part, know, and as the best maps show, that the rivers which unite above *Uchchh*, receive the name of *Pangh-Nad*, as *Bú-Rihán*, here relates, and as does *Abú-l Fazl* likewise; and it is only after the united streams join the *Ab-i-Sind* or *Indus*, that they cease to be styled the *Pangh Nad* or *Five Rivers*, and when all have united they are known, even to the present day, as the "*Sapt*" or "*Sat Nad*," or *Seven Rivers*. I believe that what has been read as *شندل*—*Shutláj*—was really meant by *Bú-Rihán* for "*Sapt Nad*" or "*Sat Nad*"—*سند*. See note 139.

\* It should be borne in mind, when comparing statements contained in *Mas'údd*, the *Masálik wa Mamálik*, and *Ibn Haukál*, that those writers visited *Sind* as well as *Multán* and other places, while *Bú-Rihán* never went farther south than *Multán* or farther east than *Láhor*.

<sup>161</sup> It is beyond a doubt, that, until the *Biáh* and the *Sutláj* both left their respective beds to unite and flow in one channel, when they lost those names, the *Sutláj* was a tributary of the *Hakrá*, but, after that, the united rivers, under the name of *Hariárl*, *Gháráb*, etc., became tributary to the *Ab-i-Sind* or *Indus*. These facts ought not to be overlooked; and yet we find recent authors writing of "*Perdikkas* carrying the Greek arms to *Ajúdhan* on the banks of the *Sutláj*, ages before the *Sutláj* and *Biáh* uniting approached within twenty-five miles of *Ajúdhan*." Who shall say that *Ajúdhan* was in existence even ten centuries after the time of *Alexander*, the *Macedonian*? It is nearer to the *Sutláj* at the present time than it ever was before, and the distance is eight miles and a half. In the 13th century it was twenty-five miles distant. See note farther on.





reflected affecting in the branches of the trees [which are submerged during the inundations] and appears like the nests of birds in them. The united waters bend to the westward<sup>163</sup> from the city or town of Aror [اور]—the Aldor—الدور—of others] in the middle of the territory of Sind, and are received into the Nahr-i-Míhrán or Míhrán River, which flows slowly through the midst of the country, and forms a number of islands [i. e., the waters flow in several channels which again unite, and the lands between are islands] until the river reaches Manṣúriyat [منصوريه] as he always spells the word in the original]. This city is situated among the branches of the river, and from that place the river unites with the ocean by two channels. One is near the town of Loháraní [لوهاراني],<sup>163</sup> and the other bends round towards the east in the confines of Kaj [کچھ—Kachchh—کج], and is called the Sind Shákar [سند ساگر—Sind-Ságarah—سند ساگر], which means The Sea of Sind. \* \* \* The river Sarasat [سرسوت] unites with the ocean to the east of Súmináth.<sup>164</sup> This last named river is, of course, the Saraswatí, which

<sup>163</sup> This is not given in the printed text.

<sup>163</sup> In another place, Bú-Rihán, immediately after referring to Loháraní at the mouth of the Nahr-i-Míhrán, where it unites with the ocean, says, that, "from Bazánah [بزانہ, also نرایہ and نرایہ in other MSS., and in copies of Rasūlīd-ud-Dīn's work], between south and west, is the city of Anhal-wárah [انہلوارہ - انہلوارہ and بھلوارہ], distant sixty farsangs; and from Súmináth, on the sea, fifty. From Anhal-wárah or Nahal-wárah towards the south is Láo-des or Lár-des [لاودیس or لاودیس], and the ~~farsangs~~ [bázár towns] of which are Bahzúj or Bahrúj [بہزوج or بہزوج], and Dhanjúrú or Rhanjúrú [دھنجورا or رھنجورا], distant forty-two farsangs. Both these places are on the sea-shore east of ~~داند~~ [or ~~تانا~~—Tána]. This is what Elliot reads "Bániya" at page 27, "Bilha [Bániá]" at page 37, "Bánia" pages 39 and 40, "Tána" and "Bhátí" at page 61, and "Bániá" at pages 77 and 79. From Bazánah to the west is Multán, fifty farsangs distant [a distance which will not suit Guzerát]; and from Bhátí [بھاتی - بھاتی or بھاتی; for it is written in many different ways] fifteen farsangs. From Bhátí south-west [south-east in one copy] fifteen farsangs, is Aror, Arro, Aro, or Udar [اور - ارو - ارو] meaning, probably, for ادور or ادور, [foreigners, it will be remembered, always leave out the ~~in~~ in Hindí words]. Bhátí lies between two branches of the Sind Rúd [not the Nahr-i-Míhrán; it will be observed], thence twenty farsangs to Bahman-no Manṣúriyat; and from thence to Loháraní, which is the mouth of the river [he mentions two mouths in the text above: this was the western mouth at that period]; where it unites itself, is distant thirty farsangs." Compare also Elliot, Vol. I, page 61, who says, at page 58, that this "Narāya" as he read it, and which his Editor altered into Narāna, is "the capital of Guzerát," but, in the original, the word is "نورات" and "نورات" in different copies.

<sup>164</sup> See page 182.

falls into the sea near Pattan Som-náth, not the classical river, the tributary of the Ghag-ghar, described farther on, the sacred river of the Bráhmans.

In another place he states, that, "from Bazánah [بزانه—also written بزانه and بزانه in different MSS.] where roads branch off to the west, is Multán, distant fifty *farsangs*, and to Bhátí [بهاتی<sup>165</sup>—also written بهانی

<sup>165</sup> The place called "Bhátí" above, is what Elliot at page 79 calls "Báná," where the country is "a marine strand;" and whatever may be its correct name, whether Bazánah, as Bú-Rihán writes it, be the capital of Guzerát or not (but Anhal-Wárah was its ancient capital), all these places, undoubtedly, lay near the sea coast, between the mouth of the Mihrán of Sind and Káthiáwár, and this evidently was Elliot's idea when writing about it as "the capital of Guzerát." Notwithstanding this, from the footnote 9, page 58, of the volume referred to, written by the Editor, Mr. Dawson, it appears that Elliot considered it, "one of the most interesting places in the North-Western Provinces [sic] to identify [this "marine strand" in the North-Western Provinces!] from the pages of Birúni." He thought it to be represented by the modern *Narwar*, and entered into details in support of this view, but he was unable to account for its being called the capital of Guzerát."

Then the Editor tells us, that General Cunningham takes another view, and says: "I have identified *Guzerát* with *Bairát*, or the ancient *Matsya*. \* \* \* Firishtha [i. e., "Briggs?"] gives these two names as *Kairát* and *Nárdín*, which he says, were two hilly tracts, overrun by Mahmúd of Ghazni. Now *Guzerát* and *Kairát* are only slight corruptions of *Bairát*, when written in Persian characters; and *Nárdín* and *Narána* are still slighter alterations of *Nárdyana*, which is the name of a town to the north-east of *Bairát*." See also pages 394, 5, and 6 of Elliot's Vol. I.

Now let us see how "*Guzerát*" and "*Kairát*" look so much like "*Bairát*" in Persian characters: كيرات - گزرات and how very much alike are "*Nárdín*" "*Narána*" and "*Nárdyana*": نارينه - نارانه - ناردين. There is not very much similarity here, I think: at least, I cannot discover it. The word, however, is بزانه *Bazánah*.

But alas for these "satisfactory" identifications! The names given by Firishtha in his Persian text are نور و قرات - Núr and QIRÁT, which refer to two *darahs* north of Jalál-ábád and the river of Kábul, in the Káfiristán, no less than *eleven degrees* farther north! The mistake respecting them I pointed out in my "Translation of the *Tabakát-i-Násiri*," page 77; and I have also given an account of Amír Mahmúd's expedition to those *darahs* in my *NOTES ON AFGHANISTÁN*, pages 134 and 135, from the author from whom Firishtha derived the information, and who wrote in the time of Amír Mahmúd's grandson, Sultán Farrukh-Zád. See also Elliot, vol. I, page 47, where the same *darahs* of Núr and Qirát, written "*Núrokrát*," as one word, are mentioned along with Lamghán north of Jalál-ábád and the river of Kábul.

According to Bú-Rihán, who mentioned this so called "*Núrokrát*" above referred to, this *Bazánah* is 60 *farsangs* = 120 miles from Anhal-Wárah, and we know where that is, and it is a long way from Lamghán, and from *Bairát* too. Aror, the ancient capital of Sind, also cannot be referred to here, because this Bhátí is but 20 *farsangs* = 60 miles north of Manşúriyah, and 30 *farsangs* = 90 miles from Loháráni, at the mouth of the Mihrán of Sind; and it is said that this place—Arp, Adoh,

or بهائي or هائي or الهائي The town of the Bhátiah is evidently meant here] fifteen *farsangs*. From thence between south and west is Aro or Arú [ارو] in MS., perhaps Aror [ارور ?], distant fifteen *farsangs*. From بهائي between two arms or branches of the Sind Rûd, is Bahman-no, or Bahman-no Maṅṡuriyat,<sup>166</sup> distant 20 *farsangs*, from which Loharánī, which is the place of outlet [of the river], is distant thirty *farsangs*."

Referring to other routes going from Kinnauj to the Mihrán, he says, after mentioning Sunám, that, going north-west from thence [Kinnauj] nine *farsangs* is Arat-húr [ارت هور] also written Arat-húz - حور or Adatt-húr - آدت هور, then to حجنبر or حجنبر or حجر or حجر or حجنبر [which I will not attempt to speculate upon] six *farsangs*. From thence to Mandhúkúr [مندھوکور] the *kaṣbah* or *bázár* town of Loháwar, east of the river Iráwat [the Ráwah or Ráwí], eight *farsangs*; then to the river Qandráhah [چندراھه] twelve; then to Jíhlam west of the Bihat [? MS. has بیت and printed text مایت] eighteen *farsangs*; from thence to Dahind [دهند or Wahind-وهند and ويهند-Waihind, in the printed text], the *kaṣbah* of Kāndhár [Gandhārah], which the Mughals<sup>167</sup> call Kará-Jáng [قراچانك] west of the Ab-i-Sind, twenty *farsangs*." \* \* \* Referring to the mouths of the Nahr-i-Mihrán, he says: "After this, you come to the lesser and greater mouths of the river, and then reach the [haunts of the] بوارج [Bawárij who are pirates, and Kaoh [Kaohohh] and Súminát. \* \* \* From Debal to Kohrá'í or Kohará'í [كوھراي] is twelve *farsangs* [thirty-six miles or little over]."<sup>168</sup>

etc.—which is probably *Addo* of the maps, about 60 miles east of Bhúj in Kaohohh—is but 15 *farsangs* = 45 miles from "Bhátí." The places referred to here mostly lie near the sea coast, Elliot's "Marine strand," extending from the eastern mouth of the Mihrán of Sind to Súraṭh, the Sauráshṭráh of the Hindús—Káthiáwár—and of this there can be no doubt. See page 258.

<sup>166</sup> See note 105, *ante*, page 196, and note 146, *ante*, page 216. These distances, if correct, would show this place بزانہ—Bazánah—to be situated in the north-west corner of the present Jasal-mir state.

<sup>167</sup> The words "which the Mughals call Kará-Jáng" will not be found in Bú-Riḥán's text. Here we have Rashíd-ud-Dín, not Bú-Riḥán, for the simple reason, that, at the period the latter wrote, and for more than a century after, the Mughals were unknown to the Musalmán writers. For more respecting this Kará-Jáng, see *Tabakát-i-Násirí*, page 1216; and compare Cunningham, "Ancient India," page 55.

<sup>168</sup> See *ante* page 206, and note 112. The overflow from the channel of the Hakrá, Wahindah, or Sind-Ságar still reaches the sea by the inlet which appears as "Kohri" in our maps, the names in which are generally incorrectly written. The Hajamro mouth of the Indus is just thirty-four miles (or lately was: it may have changed considerably since the publication of the most recent maps) from the Kohrá'í mouth to the north-west. Bawárij is the plural of بارجه, a war-boat, apparently, and certainly refers to boats or vessels.



AL-Idrīsī, who wrote about 545 H. (1150–51 A. D.), nearly a century before the investment of Uchobh by the Mughals, says, that “Sand-úr<sup>169</sup> [for Qhand-úr or Jand-úr? ‘s’ is interchangeable with, and often substituted for ‘gh’ and ‘j’ by foreigners] is situated three days’ journey south of Multán, which is famous for its trade, wealth, and extravagance of its inhabitants. It is said to form part of Hind [he afterwards mentions it among other places belonging to Hind], and is situated on the banks of a river which falls into the Mihrán above Samaid [Basmid of others].<sup>170</sup> Going from Multán towards the north there is a desert tract which extends as far as the eastern boundary of Túbarán.<sup>171</sup> From Multán, as far as the neighbourhood of Maṣúriyah, the country is held by a warlike race called Nudah [or Núdiyah, as the Sindis write it], consisting of a number of tribes scattered about between Túbarán and Mukrán, Multán and Maṣúriyah, like the Barbar nomads. These Nudahs [Núdiyahs] have peculiar dwellings, and marshy places in which they take shelter, if necessary, to the west of the Mihrán. They possess a fine breed of camels, particularly a sort called *karah*, like the camel of Balkh [the Bakhtí camel], which has two humps, and is held in great esteem in Khurásán, and other parts of Irán.<sup>172</sup> \* \* \* The place chiefly frequented by the Núdahs [or Núdiyahs] for purposes of trade and other matters is Kandá’il.”

Al-Idrīsī also says respecting Debal, that it is a populous place, but not fertile, and is inhabited merely because it is a harbour for the vessels of Sind and other parts. “Going west,” he says, “from the mouth of the great Mihrán [the principal or eastern branch] Debal is six *miṣ* [miles] distant. From Debal to Nírún, also on the west of the Mihrán, is three days’ journey.<sup>173</sup> Nírún is about midway between Debal and

<sup>169</sup> This name occurs in an old map which I shall give farther on between Rúphī and Multán, and it would therefore seem that it was known in the early part of the last century; and, from its position therein, appears to have been situated somewhere about Nohar, or Iskām-Koṭ of the present day, near the banks of the Hakrá, or farther north. It seems to be identical with the town or city of Jand or Qhand mentioned *ante*, at pages 213–14.

<sup>170</sup> See *ante* page 216.

<sup>171</sup> This appears to refer to the southern parts of the great, elevated plateaus extending from a few miles east of the Indus to the high left bank of the Biáh, and through which the rivers forming the Panj Ab, or Paugh Nad, now cut their way, and which from what is known as the *thal* or *bār-i-Qhinao* west of the Qhín-áb, and *bār* and *qhaiyd* east of it. These elevated plateaus represent three distinct geological periods apparently, respecting which more will be found in the notice of the rivers farther on.

<sup>172</sup> See *ante* page 317, where Ibn Haukal says much the same, and note 146.

<sup>173</sup> The position of Nírún is plainly shown in the old maps of the *Mamalik wa Mamalik* and Ibn Haukal, as well as from the description of its whereabouts in those

Manṣúriyah, and persons going from one to the other cross the river here. Nírún is a place of little importance, but it is fortified. \* \* \*

two works, and in others, including Al-Idrisí in the text above. Modern writers identify its position satisfactorily to themselves, but differ as to its whereabouts. Elliot fixes it at Jarak, while Cunningham prefers Haidar-ábád. He says ("Ancient India," p. 279) "the people still know it—Haidarábád—as *Nirankot*," but this requires confirmation. He also says, "it was situated on the *western* bank of the river. \* \* \* *At present* the main channel of the Indus runs to the west of Haidar-ábád, but we know that the *Phuleli* or eastern branch, was formerly the principal stream. According to McMurdo, the change of the main stream [by which McMurdo means the Hakrá, Wahindah, or Sagarah, not the "Phuleli"] to the westward of Haidarábád, took place prior to A. H. 1000, or A. D. 1592 [Haigh previously quoted, says "the change occurred only in the middle of the last century," and he is perfectly right], and was coincident with the decay of Nasirpur [Naṣr-púr is the correct name], which was only founded in A. H. 751, or A. D. 1350."

The Naṣr-púr here referred to, I may observe, lies some seventeen miles N. N. E. of Haidar-ábád, and was founded by Sulṭán Fírúz Sháh, the Khalj Turk ruler of Dihli; while the place referred to by Elliot ("Indian Historians," Vol I, p. 216) as being a place of great importance as early as the time of Dúdah, the Sumrah, who was contemporary with Sulṭán 'Abd-ur-Raṣhíd of Ghaznín, some three centuries before, refers to an entirely different place. That refers to Naṣir-púr in the south-east of Sind. It was still the chief place in that part in Akbar Bádhsháh's time, and gave name to one of the five *sarkárs* into which the territory dependent on Thaṭhah was divided. It was here that the same Sulṭán founded a fort on the banks of the Sankrah [Hakrá], on his advance against Thaṭhah the last time from Guzarát.

Cunningham continues: "As Nasirpur is mentioned by Abul Fazl [Gladwin's translation?] as the head of one of the subdivisions of the province of Thaṭhah, the main channel of the Indus [the main channel, as I have before mentioned, was the Hakrá] must have flowed to the eastward of Nirun Kot or Haidarábád at as late a date as the beginning of the reign of Akbar." I may observe that Abú-l-Faṣl's work was completed in the forty-second year of Akbar Bádhsháh's reign, and that Naṣir-púr (a different place from Naṣr-púr) was, as stated above, the name of the most south-easterly *sarkár* of the Thaṭhah province, one of the seven *maḥáls* of which was Naṣir-pur, giving name to the *sarkár*, and that Amar-Koṭ was another. In this part a small fortified town was also founded by Sulṭán Fírúz Sháh, the Khalj Turk, on his advance from Gondhal to Thaṭhah.

Elliot, on the other hand, identified, according to the writer previously quoted, Nírún Koṭ with "Jarak, and the Kinjar lake near Helái in its neighbourhood, as that in which the fleet of Muhammad Kasim [Muḥammad, son of Kásim, is meant, the latter having been dead for years] lay," but Cunningham adds that "the Kinjar lake has no communication with the Indus," and thus he disposes of Jarak "identified" by Elliot and others; but Elliot says (Vol. I, p. 400): "I am disposed to place Nírún at Helái, or Heláya, a little below Jarak. \* \* \* Lakes abound in the neighbourhood, and are large enough, especially the Kinjar, to have admitted Muhammad Kásim's fleet."

The attempt to identify places mentioned in the ancient history of Sind according to the recent state of the channel of the Indus, as if its banks had been of adamant instead of hour-glass sand and mud, and had not changed in the space of eleven,

From it to Maṣūriyah is a little more than three days' journey. Maṣūriyah is surrounded by a branch of the Mīhrān, but it is at a distance

much less twenty-three centuries is sufficiently absurd, but it is still greater when, from his own authorities (page 157), the fleet of boats of Muḥammad was sent up the Sind-Sāgar (or Wahind Sāgarah as stated in the *Qhagh-Nāmah*. See note 181, page 231), that is, the Hakrā or Wahindah, mis-called the "Narra" in the maps and Gazetteers, and that it flowed some seventy-five miles east of this "Helái" and the "Kinjar lake," and continued to do so for centuries after the time referred to. How many scores of times, likewise, has the western branch (described farther on), changed during that period from west to east and back again, and how many lakes formed, dried up, or swept away?

Wood—a keen observer and experienced surveyor—says in his work ("Journey to the Oxus") respecting this, that, "In the neighbourhood of Vikkar is the imbedded hull of a Dutch brig-of-war, pierced for fourteen guns, affording proof, if any were wanting, of the ever-changing course of the Indus. It is in vain in the delta of such a river to identify existing localities with descriptions handed down to us by the historians of Alexander the Great. The whole country from Kach'h to Karāchi is alluvial, and none of its spontaneous productions, the tamarisk tree, for instance, exhibit the growth of a century. Higher up the course of the river, where its channels are more permanent, this tree attains a large size, and this never being the case in the delta, our conclusion would appear legitimate, the soil at both places being the same.

"Could the northern apex of the delta be as easily fixed as its triangular sides can be defined, we might then venture to speculate on the probability of Alexander having visited Kach'h or Gujerat. \* \* \* But, as before observed, the absence of tangible localities involves us in a maze of doubt; and hence our deductions are oftener the result of fancy than sound inference.

"The old Dutch-built vessel mentioned above affords negative evidence that the mouths of the Indus in her day were not more accessible than at present. \* \* \* We have tolerable evidence that the Indus has never been more or less navigable than we now find it to be. Tavernier, nearly two centuries ago, said, "At present the commerce of T'hat'hah, which was formerly great, is much diminished, as the mouth of the river is always getting worse, and the sand, by increasing, scarcely gives room for a passage," pp. 2—3.

"In a mud basin undergoing continual change, such as the valley of the Indus south of the mountains, it is almost vain to look, after the lapse of so many centuries, for indications of the Grecian general's march," p. 20.

As to the apex of the delta, there can be very little doubt, that, in very ancient times, it was between Bahman-ābād, and the range of lime stone hills running down from Aror, and where the Mīhrān of Sind separated into two branches. See note on the rivers farther on.

To return to the previous subject. however, after this digression. One thing appears conclusive, namely, that as the distance between Bahman-ābād and Nīrūn was rather more than between Nīrūn and Debal, its site must be looked for some thirty-five or forty miles south of the modern Haidar-ābād, and about the same distance east of Thaṭhah; and in the Sindī accounts of the founding of Haidar-ābād there is no mention of its being founded on the site of Nīrūn. Al-Idrīsī says Nīrūn lies about half way between Maṣūriyah and Debal, that it is three days' journey

from the river. It is on the west of the principal branch, which flows from the direction of Kálari, a town one day's journey from Manṣúriyah,

between the latter place and Nirún, and that people going from thence to Manṣúriyah cross the river at Manjábārī (which lay about mid-way between the two places). Ibn Hauḳal, on the other hand states, that *the country* of Nirún is rather nearer to Manṣúriyah than to Debal; and, in another place, that while it is six days' journey from Manṣúriyah to Debal, it is but two days' journey between Nirún and Debal. In the map contained in the *Masálik wa Mamálik*, and also in Ibn Hauḳal's map, Nirún is some distance from the banks of the great river, and Manjábārī intervenes about midway between it and Bahman-ábád. But between the time that Al-Idrísí and Ibn Hauḳal wrote, a period of about one hundred and eighty years, great changes appear to have taken place, since the latter says that "the Mīhrān passes on towards Nirún, and then flows to the sea." See farther on about the second great transition of the courses of the river, also Elliot Vol. I, page 78.

Cunningham at page 279 of his work has the heading "*Putala or Nirankot*," which, as before noticed, he identifies with Haidar-ábád, and the "*Pattala of Arrian*," but at page 286 he considers that "another name" appears to have "a confused reference to *Nirunkot*." It is confused enough truly. This name is "the *Piruz* of Istakhri, [the *Istakhari*], the "*Kannazbúr*" of Ibn Hauḳal, and the "*Firábús*" of Edrisi [Al-Idrísí];" and, after quoting what they say from Elliot, he considers that their "unknown city" will accord exactly with that of *Nirankot*. "*Debal*," he says, "I will hereafter identify with an old city near *Lári-bandar* [at page 279 he says *Lári-bandar* is its probable position], and *Manḥábari* [Manjábārī?] with *Thatha*." Had Ibn Hauḳal's map contained in Elliot's volume given all the names, as in that of the *Masálik wa Mamálik*, which I have appended to this paper, it would have been perceived that what has been called "*Firábúz*," "*Kannazbúr*," and "*Pirúz*," lay midway between Darak and Manjábārī, and between Nirún and Debal, but a little nearer to the latter and about north of Debal, while Nirún lay more to the north-east from Debal; and the place in question, "*Firábúz*," or whatever it may be, was a town of Mukrán, whereas Nirún was a town of Sind, and they are totally distinct places. The name of this place is written in a variety of ways in the different authors, but in the *Masálik wa Mamálik*, in Ibn Hauḳal, and Al-Idrísí, it is فیروز - فیروز - فیروز - فیروز - فیروز - فیروز, but by what means it is managed to get *Kannazbúr*, *Kannazpúr*," and "*Kínarbúr*" out of it, is beyond my comprehension and how the 'n' becomes doubled.

It is clearly stated that Nirún lay on the road from Debal to Manṣúriyah, the position of which two places there is no doubt about. Then, that between Debal and Manṣúriyah is six days' journey. Thus we can compute by actual measurement within a few miles, to be about one hundred and twenty miles as the crow flies, or about twenty miles, to the day's journey. The *Istakhari*, the *Masálik wa Mamálik*, Ibn Hauḳal, and Al-Idrísí, all say that Nirún lay between Debal and Manṣúriyah, and that Nirún was three days' journey from each. It is likewise stated, that from Armá'il (the Hormara of the maps) to Debal is also six days' journey, consequently, the distance is much the same from Debal to Manṣúriyah as from Debal to Armá'il." This being determined, Ibn Hauḳal says, that from Debal to this "*Kannazbúr* is four days' journey ["fourteen days," as in Elliot is an error or a misprint for "four"], consequently, the distance from Debal thereto is one-third less than to

where it separates into two branches, the principal branch flowing towards Maṇṣūriyah, and the other north-west-wards as far as Sharūsān [Sadūsān or Sīw-istān] when it turns westwards and re-unites with

Armā'il. He then says that from 'Kannazbūr' to Manjābari or Maṇḡhābari is *two days' journey*. Al-Idrisi says that Manjābari or Maṇḡhābari is *three days' journey* from Sharūsān [Sīw-istān, the modern Sihwān], and this we know the exact position of, and therefore Manjābari or Maṇḡhābari was the same distance from Sihwān as Nīrūn was from Debal and Maṇṣūriyah. He also says that it is *six days' journey* from Sharūsān or Sīw-istān to "Fīrābuz," the "Kannazbūr" of Ibn Hauḳal [I give the names as mentioned in Elliot and quoted by Cunningham, because the originals are anything but "Kannazbūr," "Kinnazbūr," "Fīrābūz" or "Pīrūz," as may be seen above], and that in going from Debal to "Fīrābūz" the road passes by Manjābari. He also says that "Fīrābūz" belongs to the province of Mukrān, that is, that it was close to the Sind border. Elliot in his version of Ibn Hauḳal, vol. I, pp. 33-34, has "Kabryūn [Kannazbūn]" for this same place, which he also says is "in Mukrān."

Cunningham supposes "Maṇḡhābari," as he calls it, to be Ṭhaṭṭah, but as he "identifies" Debal as Lāri-bandar, which were two distinct places and a considerable distance apart—twelve *farsangs*, or thirty-six miles or more, according to Bū-Rihān—we may be permitted to be dubious on the subject; and after *identifying* Nīrūn with "Ḥaidarābād," he "would suggest," that the first of the three names, *Pīrūz*, *Kannazbur*, and *Fīrābūz* (which Elliot identifies with "*Punjgoor*") all of which refer to *one place*, "might possibly be intended for *Nīrūn*, and the other two for *Nīrunkot*, as the alterations in the original Arabic characters required for these two readings are very slight." I will show how slight they are. Nīrūn and Nīrūn Kot

are written نیرون کُوت - نیرون کُوت, "Pīrūz"—پیروز; "Kannazbur"—قنزابور; "Fīrābuz"—فیرابوز. All these are very much like each other certainly. A few lines under he continues: "comparing Bilāduri's [the Balāzari's extract in Elliot] *Kisbun* with Ibn Hauḳal's *Kannazbur* [see also his note to p. 287], and Edrisi's *Fīrābuz*, I think it probable they may be intended for *Punjgūr*, as suggested by M Reinand."

The position of this many named place with respect to Armā'il the "Hormara" of the maps, Debal, Manjābari or Maṇḡhābari on the Mīhrān (from which it was *two days' journey*), the great mouth of that river, and Nīrūn, would be some eighteen miles north-north-east of Jarak, but "*Punjgoor*" of Elliot, and "*Panjgūr*" of Cunningham, in Mukrān, and *only three hundred and seventy miles farther west-north-west*, is totally impossible. With regard to Manjābari or Maṇḡhābari, there is a place called *Manjhand* in the maps, close to the Railway on the west bank of the Indus, just half-way between Kotri and Sihwān, fifty-nine miles from Jarak, and still a place of some importance, but the distance from Debal would be too great. See the old 'Arab map, where Manjābari or Maṇḡhābari, written without diacritical points, is marked.

To the south of Ḥaidar-ābād, in the plain close to where the Fulaili branch of the Indus used a few years back to unite with the Gūni, the country for miles round is covered with broken bricks and the ruined foundations of large buildings. Tradition says that a large and flourishing city once covered the plain and extended as far as the range of limestone hills on the extreme northern part of which, some eighteen miles farther north, Ḥaidar-ābād stands. Hereabouts the site of Nīrān-kot

the main river, and forms after that but one stream.<sup>175</sup> This junction occurs twelve *mīl* [miles] below Maṇṣúriah. The river then passes on to Nírún, and subsequently unites with the ocean.<sup>176</sup> Maṇṣúriah is accounted among the dependencies of Sind, like Debal, Nírún, Sharúsán, Qhándúr, Baniyah, Kálarí, Atrí, Basmíd, Multán,<sup>177</sup> etc.

"Dor"<sup>177</sup> lies on the bank of the Mihrán which flows west of that city [or town]. It compares with Multán in size. From it Basmíd is three days' journey, Atrí four days', and Kálarí two. The last-named place is on the west bank of the Mihrán, is a well fortified town, and carries on a brisk trade. Near it the Mihrán separates into two branches, the largest branch [*i. e.* the main branch] flows towards the east as far as the vicinity of Maṇṣúriyah which is on its west bank, while the other runs north-west, then north, and afterwards towards the west.<sup>178</sup> The branches again unite about twelve *mīl* [miles] below Maṇṣuriyah. Kálarí is some distance out of the main route, but is much frequented for trading purposes. It is distant from Maṇṣúriyah a long days' journey of forty *mīl* [miles], and from Sharúsán [Siw-istán or Sudúsán] three days' journey. Sharúsán is remarkable for its size, its fountains, and canals, its abundant productions, and its profitable trade. From thence, distant

might be sought for. Then again there are the ruins near "Shakhr-púr, of the maps, some thirty miles westwards from Thaṭṭah, and the extensive ruins near Bádin, about thirty-three miles west of that again. The ruins at this place are similar to those of Bahman-no or Bahman-ábád, and the city or whatever it was, was probably destroyed at the same time. The ruins near Bádin *may be* those of Manjábari, and those near "Shakhr-púr" may be the remains of Nírún Koṭ, but more probably of Dampilah; but there is no district of Sind less likely to show remains of antiquity than that known as Shéh Bandar.

<sup>175</sup> See Bú-Rihán's account above, who also mentions two mouths.

<sup>176</sup> It is stated in the Tárikh of Háfiz Abrú, which is a comparatively modern work, but held in great estimation, and completed about 829 H. (1425 A. D.), that, "The source of the river Sind is on the skirts of the mountains of Kash-mír [north of], and runs from the western side of those mountains into the territory of Maṇṣúriyah, its course being from north to south, and near the end of its course bends towards the east, and enters the sea of Hind. The river Jamd [the Jhilam] also rises in the mountains of Kash-mír, but on the south side. It runs from north to south, and enters the land of Hind. \* \* \* In the neighbourhood of Multán it unites with the Sind river, which falls into the ocean. The Báh is a large river, which rises on the east side of the mountains of Kash-mír, flows through the territory of Lúhāwar [Láhor], and from thence to Uchch, and falls into the ocean in the country of Kambāyah." The chronicler, no doubt, meant the tract adjacent to Sorath or Saurághtra, between it and Sind, the river separating the two tracts of country; and he referred to the Hakrá or Wahindah of which the Báh was still a tributary.

<sup>177</sup> Others consider Multán to be dependent on Hind.

<sup>178</sup> The word is رور or Ror - رور, it appears written with ر in MSS.

<sup>179</sup> See Ibn Haukal, page 216.

three days' journey, is Manjábari, a town situated in a depression or hollow, a pleasant place, surrounded with gardens, fountains, and running water. \* \* \* It is two days' journey from Debal.<sup>179</sup> \* \* \* Among the places of Hind, touching upon Sind, are Fámhal, *فامال*,<sup>180</sup> Sindán, Saimúr, etc." He mentions likewise certain maritime isles, referring, no doubt, to the tracts on the coast, and the *Ran*, or great marsh, between the mouths of the Mihrán and *Kachchh*.

The Kázwíní, who quotes from a much earlier writer, does not give us very much information respecting the rivers of these parts, but he says, that "The *Nahr-i-Mihrán* [that is the *Ab-i-Sind*. See *ante* note 117.] rises in the same mountain region in which the affluents of the *Jihún* take their rise," and, that "the *Nahr-i-Mihrán* flows in a general direction of about south-west. After being joined by another *Nahr* from the eastward, the united rivers flow towards the west [south-westwards], and fall into the sea of Fárs. A branch having separated from the *Nahr-i-Mihrán*, encircles Manşúriah, and makes it like unto an island." The territory immediately about Manşúriyah is, of course, meant as shown in the Masálik wo Mamálik map.

In another place, quoting from the Istakharí, already noticed, he says: "The Istakharí states, that the *Nahr-i-Mihrán* rises at the back of the mountain [range] out of which the affluents of the *Jihún* issue. It then appears near Multán, on the boundary of Samandúr [سمندر], and, having passed under [below] Manşúriyah, unites with the sea to the east of Debal."

In another place the Kázwíní mentions Nudiyah or Núdiyah, which he says, "is an extensive tract of country in Sind, containing numerous people, who are of different tribes. They possess considerable wealth; and most of the cultivation is rice, [showing that water was not scarce]. \* \* \* They also have a fine breed of camels, the like of which is not found elsewhere. They are taken into *Khurásán* and Fárs to breed from."

Another geographical work, the *Murásid-ul-I'tilá*, plainly states, that "Debal is a well-known town [or city] on the shore of the sea of Hind, and a place of considerable trade, near which place, likewise, the rivers of Láhor and Multán, empty themselves into the ocean."

We may now gather further information respecting these rivers of Sind from the proceedings of the 'Arab conquerors, but they double up

<sup>179</sup> The name of this place is generally written Dibal by the old geographers and historians, but, as the name is evidently derived from Debal or Dewal—an idol-temple—the mode of spelling given above is the more correct.

<sup>180</sup> I leave it as it is written. This is the word of which Elliot makes "*Kam-báya*."

events, so to say, considerably. Aḥmad, son of Yahyá-al-Balázari, author of the *FURÚḤ-UL-BALADÁN*, previously quoted, is the earliest historian.<sup>181</sup> He brings down events to the year 227 H. (842 A. D.). He does not appear to have actually visited Sind; for his work is a general history of the conquests of the 'Arabs, but he quotes from persons who had been, and had served, in Sind; and he is repeatedly quoted by Al-Mas'údi and Ibn Ḥaukal, both of whom afterwards visited it, and by others. He died in 279 H. (892-93 A. D.). It is strange that there is so little mention made in Ṭabari's chronicle respecting the conquest of Sind. All he says is, that, "during the *Khiláfat* of Walid, son of 'Abd-ul-Malik, many victories were gained; and, among other parts, a portion of the territory of Hindústán was conquered by Muḥammad-i-Abú-l-Kásim," and this is all. Sind he included in Hind or Hindústán.

The Balázari says, that Muḥammad, son of Kásim, advanced into Sind from Sijis-stán by way of Armá'il,<sup>182</sup> which was taken, and reached Debal or Dewal, the sea-port of Sind, and the nearest point from thence [Armá'il] on the sea-coast of Sind. Here there was a *budh*, the name given by the 'Arab writers to a Buddhist temple where idols are worshipped, and which the name of the place was derived from. From this *budh* a large red flag waved from a tall staff, which was struck by one of the *balistas* of the 'Arabs, and knocked down. The place was taken by assault, after which Muḥammad moved to Nírún or Nírún Kot,<sup>183</sup> which

<sup>181</sup> The *Qhaḥ Námah*, however, may be considered equally early, as it contains the accounts related by actual actors in the events recounted in it, handed down from sire to son. See note 185.

<sup>182</sup> This well known place in the history of Mukrán and Kirmán, Elliot, in his "Indian Historians" invariably miscalls "*Armábel*," just as he miscalls *Qandá'il* "*Kandábel*," and "*Kandábel*," in most places, but "*Kandá'il*" in a few others. It is, apparently, what Masson calls "*Hormara*."

<sup>183</sup> The *Qhaḥ Námah* says, that, after possessing himself of Debal, he despatched his *balistas* on boats which went up the river which they call the Sind Ságar [that is, the main branch of the Hakra or Mihrán of Sind] towards Nírún Kot, but went himself with his army towards Sísam, and when he reached it, he received a reply to his announcement of the capture of Debal from Amír Ḥajjáj which was dated Rajab, 93 H. (May, 712 A. D.).

An 'Arab who was present, quoted in the *Qhaḥ Námah*, states that Muḥammad proceeded from Debal to the *Ḥiṣār* of Nírún, which was twenty-five *farsangs* (seventy-five miles) distant, and that on the seventh day he reached the neighbourhood of Nírún, which was a grassy plain which they [the people] called Balá-hár in the tract or district [*samtān*] of Ro'í or Rú'í. At that period, the *Ab-i-Sihún* and the *Mihrán*, had not reached it; and the troops became much distressed for water, and began to complain. Muḥammad having offered up prayers to Heaven for rain, it fell, and all the water-courses and reservoirs in that vicinity were filled.



capitulated. Proceeding north-eastwards, he came to a river which flows on this [the west] side of the Mihrán,<sup>134</sup> which he crossed, and then took a place called Sahbán [Sisam of the *Qhagh Námah*, and *Salím* of others], after which he moved to the banks of the Mihrán. His object was to attack Bahman-ábád, the place of greatest importance in that part of Sind; but, before doing so, he had to detach part of his force to recover possession of Siw-istán, which had previously been surrendered to him, but which had now revolted, the exact situation of which, with Bahman-ábád, and Aror, or Alor, there is no possible doubt about. His detaching this force, as he did, clearly shows, that, at that time, the Mihrán of Sind or Great Mihrán, as some of the old writers call it, did not flow even so near to Siw-istán or Sndúsán, as it did when the *Masálik wa Mamálik* and Ibn Haukal's work were written, some two hundred years after these events; for, according to the maps in those works, the river appears to have still passed some distance east of it.<sup>135</sup> Had this not

When Rá'e Dáhir heard of the fall of Debal, he made light of it, saying that it was "a place morely inhabited by low people and traders; and he directed his son, Jai Sípha, to leave a Samaní [Priest] there in charge, and repair himself to old Bahman-ábád." Nirún was surrendered to the 'Arabs by the Samaní in question.

The *Qhagh Námah* states, that, "in the night following the fall of Debal, one Jáhín, by name, got his women over the walls, and on arriving outside, found horses and a dromedary waiting them, which had been sent by Rá'e Dáhir, and mounting at once, pushed on until they reached a cutting or small channel of the Mihrán, which they call Gár Mitti [Gár Mitti] on the east side of the Mihrán. From thence Jáhín sent an elephant to convey the news of the fall of Debal to Dáhir, who enquired what village Jáhín had reached; and he was told that "he had reached "Gár Mitti," that is to say "Kul-i-Shor" [village of Misfortune or Calamity"].

<sup>134</sup> This may refer to the western branch of the Mihrán of Sind, which, near Kálarí, some forty miles above Bahman-ábád, turned to the north-westwards, and then south again, but more probably refers to one of the old channels from the Sindhu or Ab-i-Sind, which flowed between Siw-istán and Bahman-ábád, noticed farther on. According to the *Qhagh Námah* this river was called the Kunbh.

<sup>135</sup> After halting some days at Nirún and suffering for want of forage, that place was given up, and Muhammad, leaving a Shahnah or Commissioner there, moved towards "the fortress of Siw-istán, situated to the west of the Mihrán on the summit of a hill." He determined that he would reduce this stronghold first, and having set his heart at rest respecting that part of Sind, on his return from thence he would make preparations for crossing that river, and attacking Dáhir. Elliot has "re-cross" but as he had not crossed it, he needed not to re-cross.

I may mention here, that the *Qhagh Námah*, which is taken from 'Arabic annals, containing the statements of persons who were present along with the Amír, 'Imád-ud-Dín, Muhammad, son of Kásim, and who had related the events to their descendants some years only after they occurred, was translated in the reign of Sultan Násir-ud-Dín, Kabá-jah, nearly four hundred years after the Balázari wrote his work, just one hundred and thirty-five years after the invasion of Sind. The

been the case, and had no other great obstacles existed, which there did, he might have crossed and taken his whole force to Bahman-ábád from

original was probably written before the Balázari wrote. It states that Muḥammad proceeded from Nírún stage by stage until he reached a place called Manj or Moj [موج], which others call Bharaj or Bahraj [بهرج], the same place as is mentioned at page 215, and which also appears in the old 'Arab map, thirty *farsangs* from Nírún, and that there was stationed a Malik on the part of Bajhrá, son of Qhandar, Rá'e Dáhir's uncle. Then the account passes at once to Síw-istán, the people of which—those interested in trade and in saving themselves only—were desirous of submitting, but Bajhrá would not listen to it, and the fighting men were ready to defend it. \* \* \* "Muḥammad, son of Kásim, took up a position before the *Registán* [sandy tract or desert] gate to attack the place, because there was no other ground; for the waters of the rainy season had risen, and, from, or on, the north side, the *ju'e* Sind—the Ab-i-Sind—did not, in former times, flow." That is to say, at the time the narrator was referring to. There is not a word about any "selected ground," nor any "Sindhu Ráwal." Elliot mistook در آدل for راول. His version of the *Qhach* Námah is very imperfect, or carelessly done; and to understand Muḥammad's movements in Sind, and the events which happened at that time, the *Qhach* Námah requires to be properly and faithfully translated.

These operations against Síw-istán must have been carried on in December, 711, if not in January, 712 A. D., but all the dates are more or less confused.

After some days investment, and the failure of an intended night attack upon the 'Arab camp before the *Registán* Gate, Bajhrá, under cover of the night, fled by the Koh-i-Shamálí [North Hill] Gate, crossed the river [not the Mihrán: that was a long way off], and did not tarry until he had reached the boundary of Búdiyah, east of the river. At that time, the ruler of the Búdiyah territory was Kákah, son of Kotal, whose residence was the fort of Sísam on the bank of the Kunbh."

From this it would seem that there were two places called Sísam, or there is a mistake in one of the two names, which is most probable, because Sísam, the Sahbán and Sílam of others, is the place which the 'Arabs reached from Nírún on their way to Síw-istán.

After the flight of their governor, the people of Síw-istán were allowed to surrender.

Elliot says that "Seisan, a village on Lake Manchur may be the place here called Sísam." There is a place, so called, in some comparatively recent maps, but such is not to be found in the "Indian Atlas" map from the most recent surveys. Sísam, however, as the context shows, was a considerable distance to the eastward of Lake Manchhar.

Mir Má'súm of Bakhar, one of the historians of Sind, makes a statement worthy of record here. He says, that the tract of country west of the Mihrán [as it flowed in his day] dependent on Síw-istán, is called by the Fuḡahá-i-Islám [Doctors of Law and Divinity] by the name of *U'ghar*, because the Jinnah people <sup>جناه</sup> [sic in MSS., possibly meant for Qhinnah] submitted of their own accord to the Musalmáns, on which account, according to the *Shara'*, the legal tribute they were liable to, was one-tenth; whereas, if they had been reduced by force of arms, the legal tribute would have been one-fifth.

Siw-istán, instead of having to return to Nírún for that purpose. He found it impossible, however, to get to Bahman-ábád from thence for various reasons, as related in the *Qhach Námah*; for he had previously despatched his battering rams up the Sind Ságar towards Nírún, on the west side of the estuary of which, at the distance of about six miles, Bahman-ábád was situated, as stated by the Balázari, who subsequently visited it. When we see the vast changes which a single year brings about in the courses of the rivers of these parts, we can form some idea of the changes which must have occurred in two hundred; although there are some who expect to find on its banks, and actually presume to identify, places mentioned above two thousand two hundred years ago, and suppose the rivers to be running in the same channels, and in much the same positions, as the Greeks found them.

The Balázari takes us, at once to Sadúsán or Siw-istán, and states that it capitulated, which so far is correct; but another work, the *Jámi'-ut-Táwarikh*, says, that, "the fortress of Salím<sup>186</sup> was first captured, and then Sadúsán or Siw-istán surrendered. Its affairs having been disposed of, and an 'Arab officer left in charge of it, Muḥammad, son of Kásim, prepared to cross to the east side of the Mihrán by a bridge of boats which he had caused to be constructed.<sup>187</sup> But the writers do not mention the

<sup>186</sup> The Sahbán of the Balázari, and Sísam of the *Qhach Námah*.

<sup>187</sup> Some considerable time elapsed before Muḥammad could cross the Mihrán. After the capitulation of Siw-istán, he, leaving a Commissioner there with a small force, moved with his army against Sísam, and reached a place called Nádáhah [نیدهاہ—in another MS. نیدهان—Nídhán] on the banks of the Kunbh. The chief priests of the Buddh there, who traced their lineage from Ikránah or Akránah on the Gang, which they call A-dwand Bihár (See "*Ṭabaqát-i-Násiri*" page 491, and Appendix D, page xxvi) incited the Ránás of the Jaṭs of Búdhíyah, and Kákah, son of Kotál, to make a night attack on the 'Arab camp. They made the attempt, Kákah sending a thousand men with them, but it did not succeed; and, soon after, Kákah submitted, and subsequently, betrayed his countrymen. After this affair Muḥammad appeared before the fort of Sísam and invested it for two days; the infidels were defeated, and the fort captured. Bajhrá, son of Qhandar, and uncle's son of Dáhir, with Káwats and Thákurs, who were his dependents and followers, there fell, along with Bajhrá; while others fled to Upper-most Búdhíyah [بودهيه بالا تر], and some to the fort of Bhaṭlúr [بھٹلور], between Sáláj and Kandá'il.

About this time Muḥammad received orders from Amir Hajjáj, saying, that it was necessary for him to leave other places alone, and to return to Nírún, and make arrangements for crossing the Mihrán and reducing Dáhir, and when that was effected, the strongholds and provinces would naturally fall into his hands. Muḥammad accordingly returned towards Nírún, and, on his way, happened to halt "near the fortress situated on the hill (*koh*) of Nírún, adjacent to which was a lake," the praises of which he gives in glowing terms. Without doubt, this lake is that called the Sonhari Phanḍ, and the ruins of the fort are on the north side of it. The Jám,

difficulties he had to encounter, the delay in obtaining boats, the want

Tamásghí, one of the Sammah rulers, is said to have subsequently occupied it. See ante note 173. Muḥammad gave Amír Hajjáj an account of his recent proceedings, and that he "had reached the bank (*lab*) of the Ab-i-Sihún, which they call Mihrán, at a halting place which lay in the tract of country around Bádhíyah, and opposite to the fortress of Laghrúr or Baghrúr [غرور or لغرور], which is situated on that river [on the east bank] and belonging to the territory of Dáhir, and the very strong fort of Sísam; but, in accord with his commands, he had returned, and awaited further instructions, which he hoped to get soon," as the place he was then writing from, he says, was "near to the Dár-ul-Khiláfat." He probably meant nearer than Siw-istán was.

With all this before him, Elliot, in his work, confounds Baghrúr with Nírún, while it is certain that the place in question lay east of the Mihrán, and Nírún on the west, as is plainly stated. See vol. 1, page 163, where he has, "opposite the fort of Baghrúr (Nírún), on the Mihrán. \* \* \* This fort is in the country [district is meant which lay east] of Alor. \* \* \* The forts of Siwistán and Sísam have been already taken," etc.

His accounts of Muḥammad's movements preparatory to crossing the Mihrán, in his extract from the Qh'ūh Námah, is hopelessly confused. He says (page 166): "Muhammad Kásim [this is how he writes the father's and son's names together as those of one person] had determined to cross, and was apprehensive lest Ráí Dáhir might come to the banks of the Mihrán with his army, and oppose the transit. He ordered Sulaimán bin Tihán Kuraishí to advance boldly [here a good mistake has been made, and the words "towards Baghrúr" have been rendered "to advance boldly" mistaking غرور for غرور—'pride,' 'haughtiness,' etc.] with his troops against the fort in order that Fúfí, son of Dáhir, should not be able to join his father [In a note he says: *MS. A.* is faulty, but seems to say "the fort of Aror." He was a long way from Aror]. Sulaimán accordingly went with 600 horsemen. He ordered also the son of 'Atiyn Tifí to watch the road with 500 men, by which Akham might be expected to advance [this refers to a *place*, not a man. See his work page 362], in order to cover *Gandava* [sic.] and he ordered the Samaní, who was chief of Nírún to keep open the road for the supply of food and fodder to the camp. Mus'ab bin 'Abu-r-rahman was ordered to command the advance guard, and keep the roads clear. [This Mus'ab, son of 'Abd-ur-Rahmán, uṣ-Ṣakaffi, was a kinsman of Muḥammad]. He placed Namána bin Hanzala Kalábí in the centre with a thousand men; and ordered Zakwán bin 'Ulwán al Bikrí with 1,500 men to attend on Moka Bisáya, chief of Bait [sic]; and the Bhetí [Bhaṭṭí?] Thakurs and the *Jats of Ghazvi*, who had made submission and entered the 'Arab service, were told to remain at Ságara and the island of Bait."

We all know where Gandábah is, also that *bet*, not "Bait," means an island, or rather, the delta of a river, surrounded by channels, which this was—the delta of the Mihrán; and what he has mistaken for "*Ghazvi*," along with his "*Gandava*," is the word غربي—*western*, applied to the Jats on the western side of the Mihrán, as *sharḥ* Jats is applied subsequently to those on the east side. We also know for certain that Nírún lay between Debal and Manṣúriyah, but nearer to the former, and that Ságara was two days' journey from Debal on the east. Elliot likewise tells us, as does Cunningham, who follows him, that "*Gandaba*" was always called *Kandabá* in those days." See note 150, page 217.

of food and forage, and the consequent loss of men and horses from

If any one will take the trouble to look at a map, it will be seen at a glance what nonsense this is. Gandábah is no less than four degrees of latitude farther north than where these operations took place, namely, in the lower part of the delta of the Mihrán, in the southern part of the present Haidar-ábád Collectorate of Sind; and between the present town of Jarak and the Puránah *Dhorah*, and farther north. The *bet*, or delta, at that period, did not extend farther south than the Pír Patho hills and the present Wángah Bázár, if so far south. The object of these movements of Muḥammad, son of Kásim, is sufficiently manifest. It was to pass the western branch of the Mihrán just above its junction with the main stream again, as indicated in the "Masálik wa Mamálik" map. We must not judge of the lower part of the delta by what it is *now*, but by what it was some twelve centuries since. See note 163, page 221.

The account given in the *Qhach* Námah respecting Muḥammad's movements after his return from Síw-istán by command of Amír Hájjáj, contains so many important geographical details, that I must give a short abstract of them here.

At the period in question, one of Ká'o Dáhir's "Maliks," as they are styled in the *Qhach* Námah, held a *Hišár* or fort in the *Bet* or delta, on the Mihrán, and apparently just below the junction of that branch of the river, which, about forty miles above Bahman-ábád separated into two, and re-united with the eastern branch again some distance to the south of that city, and towards the sea coast. This *Bet*, it is stated, was situated on the *east side* of the Mihrán on the margin of a stream [a minor channel], an island formed by the Kumbh river. The Malik was called Rásil, son of Sáini. Muḥammad was told that, if he could win him to his side, the difficulty of crossing the Mihrán would be got over.

Amir Hájjáj, in his letters to Muḥammad, containing excellent advice for his guidance, impressed upon him to choose a place where a strong bridge of boats might be constructed, and where the crossing place was flat and even. It was after this that Nírún was surrendered to him by its governor, who was continued in charge of it. In the mean time, some of the petty chiefs of the Bhaṭi tribe, and others, began to submit to him; and, at Nírún, an inhabitant of Debal, who was a native of Baṣrah, brought to him a Samaní or Priest, who, he said, could facilitate his crossing the *Ab-i-Sind* [*sic.* not *Mihrán*]. In Muḥarram, 93 H. (October, 711 A. D.), Muḥammad moved from his position—the last mentioned was the delightful place on the *koh-i-Nírún*, near the lake before referred to—and arrived near the fortress of *Ash-bahár* (اشبهار), a place of great strength, with a determined garrison, the town, which lay on the west side, having been brought within the area of the defences by surrounding it with a ditch. It was, however, reduced and a *Shahnah* or Commissioner left there. From thence Muḥammad moved to the west bank of the *Ab-i-Mihrán*, on the verge of the boundary of Ráwar. This appears to have been one of the most important places in lower Sind, which *Qhach* had founded on the east bank of the great river, and near it was *Jai-púr*, which is constantly mentioned along with it. In the mean time, a chief named Mokah, the *Bishiyah*, submitted to the 'Arab leader. He was brother of Rásil, the then chief of the *Bet*, above referred to, and between the two brothers and their father, who sided with Rásil, great hostility existed. For this the *Bet* was conferred upon him (nominally), and he was directed to collect boats for the proposed bridge.

Muḥammad wrote an account of these matters to Hájjáj, and, soon after, moved

disease, and the months that elapsed in the mean time. Having effected

to that part of the west bank of the Mihrán which was opposite to Ráwar [and] Jai-pár, and Mokah was sent to select a place for crossing. But Hajjáj required "a map on paper, with the measures of the depth and breadth of the river, and the state of the banks for four *farsangs* up and down stream at the place proposed." During this period, Dáhir's people had surprised Siw-istán, which had been left with but a few of his own 'Arab troops, and Muhammad had to detach 4,000 horse thither, and secure it. This is what the Balázari refers to in the text above, as though that was the first capture of Siw-istán.

On hearing of Mokah's proceedings, and of his going over to the Musalmáns, Dáhir now sent his son Jai Senha to the *Bet*, to prevent the 'Arabs crossing and holding it. Jai Senha came [down stream] with his troops, accompanied by boats, by the Kotkah branch, to the banks of the Mihrán, to the fort of the *Bet* opposite to Muhammad's position.

More than a month passed, want of food for themselves and their horses stared the 'Arabs in the face; the horses fell ill, and such was the scarcity, that those which became affected were killed and eaten. Boats were not forthcoming; and suspicion arose that Mokah was deceiving them. Hajjáj became angry at the delay, and commanded that boats should be procured by whatever means attainable, and sent from his own stables 2,000 horses. In the mean time, provisions and forage began to be brought in, but great sickness [scurvy] prevailed, so much so, that Hajjáj had to send vinegar, which was done by repeatedly saturating carded cotton with vinegar and drying the cotton each time, and when sufficiently saturated, it was made into bales for facility of transmission. The cotton was to be soaked in water, and the vinegar solution given to the sick. Hajjáj further directed that the passage should be made at the *Bet*, wherever the Mihrán was narrowest and the banks easy; and, if there was an island or bank in the channel, it was to be made use of, and the crossing effected by degrees, constructing a bridge of boats for the purpose.

Muhammad now broke up his camp, and marched into the district [or tract—*samán*] of Ságarah, belonging to the district of Jhim, and directed the boats to be brought, and planks as many as might be required. In the interim, the Wazir of Rá'i Dáhir endeavoured to rouse him from his carelessness and neglect of his affairs; and Muhammad, not desiring to be obstructed in the construction of the bridge of boats, and in crossing, detached 600 horse towards the fort of Baghrúr (on the opposite side) to attract the attention of Fúfi, Dáhir's son, there stationed; also 500 horse on the road to Akham ["Aghámanno" of Hughes, and "Augoomanoo" of maps, on the Puránah *Dhorah*, 25 miles S. E. of Haidarábád] to watch the territory of Kandárah [كاندراه]. This is Elliot's "Gandava." See also pages 166 and 362 of his work; while the Samaní in charge of Nirún (who had previously submitted to the 'Arabs) was to take care that food and forage reached the army. Another 1,000 men were pushed forward to guard the road, while another body of 1,500 more, and Mokah, the Bisayah, Malik of the *Bet*, and the Thákurs of the Bhañfs and the western [عربي] Jats [this is the word read as "*Ghasat*" by Elliot. See pages 167 and 507 of his work], and the chief men of Ságarah, who have submitted, were stationed in the *jastrah* of *Bet*." The author, probably, was not aware that both words are of the same signification, one being Persian and the other Hindí.

As soon as Muhammad reached the Jhim passage, he went to examine where the ford was narrowest and least obstructed, and the banks suitable; and he came to a

stand opposite to the *jastrah* in question. Having satisfied himself, boats were brought, stones laid out [to moor them], planks laid on, joined, and fastened together. Dáhir being aware of Mokah's doings, had sent his son, Jai Senha (as before noticed) to hold the *Bet*, and he was directed not to trust the Bisháyah, Sarband, who might be in communication with Mokah. On this, Rásil, the latter's brother, and his enemy, went to Dáhir, and asked to be permitted to defend the *Bet*, as he and his father had always been hostile to Mokah; and he was sent, and directed to prevent the 'Arab army crossing, and the chief men of the *Bet* were commanded to obey his orders. On this, Jai Senha returned to his former post at Ráwar. Rásil, accordingly, effectually prevented the bridge from being finished and secured to the east bank; so Muḥammad had to have as many boats prepared and joined together on the west bank as would span the Mihrán, troops were placed on it, and it was pushed off. It so happened that (swinging round) it touched the opposite bank exactly at the point where the enemy were collected to oppose the passage, and the infantry on the bridge of boats, pouring a volley of arrows among them, leaped on shore, formed up, and dispersed them; while their comrades secured the bridge head with pegs and stakes, and then they pursued the enemy to the very gate of Jhim. One of the fugitives, however, managed to get away, and, by dawn the next morning, reached Dáhir's camp, and told the bad news. [See Elliot, page 167].

Then Muḥammad addressed his army, and told them of the hardships and dangers they were about to encounter, and that if any one wished to return, now was the time, but only three persons did, their reasons being deemed sufficient; and the bridge being now quite finished, body after body of the troops crossed, losing but one man, who fell from the bridge and was drowned. As soon as the passage had been effected, the army was marshalled in battle array, and moved forward until near the fort of the *Bet*, using great caution (as enjoined by Hajjáj), and intrenching the camp. From thence Muḥammad advanced towards Ráwar until he reached Jai-púr, and between it and Ráwar was an inlet or creek, and at the passage across, Dáhir, who had reached the east side of the creek with his forces, had sent a party to reconnoitre; and Jai Senha was directed to oppose the further advance of the 'Arabs, but he was overthrown with great slaughter.

At this juncture, Rásil, brother of Mokah, who had prevented the 'Arabs from completing their bridge and securing it to the east bank, offered to submit; but, in order "to preserve his honour," he asked the 'Arab leader to send a party of troops and capture him at a certain place, at the *já-e* [canal or water-course] of Barfari or Bafari, five *sarakhs* from the fort of Kunbh, where he would be, under pretence of going to Dáhir's presence. This was done, and then Mokah, his brother, was installed in the *Bet*.

Muḥammad was advised by both brothers, to move from where he then was to a place called Nárá'i or Nárání (ناراني); for Dáhir was at Kájiják [a strange Sindhi word with two 'Arabic ق]; and, on well examining the country around, it was found that a large lake [long, narrow lake or *ghanḍ*], which was impassable (on foot), intervened. Rásil said it must be crossed; and he obtained boats, and the passage was effected, but still another inlet, *ghanḍ*, or side channel, intervened between. Rásil advised that the force should move another march farther up stream, towards Jai-púr on the canal of Dadabab Wáh, which is a village belonging to Ráwar, and

**Qhaoh**, the ruler of the country, whose capital was Aror, he encountered Rá'e Dáhir in battle, at the head of a considerable army with numerous war elephants, who, towards the close of the day, was completely overthrown, and killed in the engagement. Muḥammad, after this success, moved towards old Bahman-ábád, which was two *farsangs*<sup>138</sup> from where Mangúriyah was afterwards built, its subsequent site at the time being a *jangal*. The great mound, styled "Thool [Tall] Depur Ghangra" of the large one inch scale map, six miles north-east of Bahman-ábád is doubtless its site. At Bahman-ábád the remains of Rá'e

there halt, as Muḥammad would then be parallel with Dáhir's position, and from it, would be able to act either in front or rear of it, and on Dáhir's baggage. He did so, and came to the canal of Dadahh Wáh, on which Dáhir moved towards Ráwar; and having there deposited his servants and baggage, he came and took up a position where, between him and the 'Arab forces, only a *farsang* distance intervened. Muḥammad, on this, moved nearer towards Dáhir's position until he had reached within half that distance from him. Fighting had gone on for three days, until, on the fourth, Dáhir himself appeared in the field, and a severe conflict took place. Muḥammad had detached 6,000 of his troops in advance, with directions to cross the channel, which on that day separated the two armies; but, finding that they were likely to be hard pressed, through the enemy having got an inkling of the movement, he moved to their support with the remainder of his forces. Dáhir had determined on making a supreme effort, and did so. He had concentrated all his available forces, and the different tribes of Sind, including the *sharki* Jats—the Jats east of the Mihrán—besides his own troops, were posted in the rear in support. All was of no avail: the infidels were driven back with great loss; and the Musalmáns, that night, remained on the field, in the position they had gained. This was the 9th of Ramazán, 93 H. (19th June, 712 A. D.). On the following day, the 10th, Muḥammad harangued and exhorted his troops [there was no "*khutba*," to read. See Elliot, page 169]; the Arabs made a general attack upon Dáhir and his forces; and he was finally killed near the fort of Ráwar, between the Mihrán river and the canal of Dadahh Wáh, in endeavouring to reach that fortress, and his troops were overthrown with great slaughter, and pursued to the gates of that place. Jai Senha, son of Dáhir, and Rání Bá'i, Dáhir's sister, whom the latter had married, entered the fort of Ráwar, and there shut themselves up; but Jai Senha was for sallying forth, and again fighting the enemy while life lasted. He was dissuaded from doing so, and advised by the Wazír of Dáhir, to retire to the *hiḍr* of Bahman-ábád, where he would be able to rally the forces of the country, and be able to make a stand against the Musalmáns with more chance of success. He did so; and Rání Bá'i, with some of Dáhir's Maliks along with her, remained in the fort of Ráwar resolved to defend it. It was invested, and the walls breached, and finally surrendered; but, before this was done, Rání Bá'i had ascended a funeral pyre, and joined her husband and brother.

From this it will be seen, that a considerable time elapsed after the 'Arabs entered Sind before these events came to pass; and, what is surprising, is, that these operations went on in the height of the hot season, when, at the present time, the rivers are in flood, and the country inundated, and yet no remark is made on the subject.

<sup>138</sup> A little over six miles. See note 105.



Dáhir's forces had rallied; and in the operations which ensued before that place fell, 26,000 men were slain on the part of the defenders.<sup>199</sup>

<sup>199</sup> Mír Ma'súm here is quite at variance with the historians who wrote several centuries before him, and one of whom wrote not much more than a century after the events he records. Mír Ma'súm is brief, doubles up events, and thereby confuses them. He makes Muḥammad, son of Kásim, after the fall of Siw-istán and Salim, reject the advice given him to attack Bahman-ábád first, and makes him march direct from Siw-istán to Alor or Aror, which he did not do. He says he crossed "the river" to the *mauza* of Tahl-tí—تھلتي—which, in two other copies of his work, is written تھلتي and تھلتي—three or four *kuroh* from Siw-istán. The first name, however, is correct. "The river" here cannot refer to "the Mihrán of Sind" (nor even to the branch which flowed towards it from Kalari), which passed upwards of forty miles farther east at the period in question, in which direction Kalari lay, but to what is called the Kumbh in the *Chach* Námah. There is still a *mauza* called Tahl-tí about seven miles north of Siw-istán or modern Sihwán, on the east side of the river which we call the "Western Nára," whose channel, in former times, was, no doubt, a branch of the Sindhu or Ab-i-Sind; and at that period, it may have been known as the Kumbh or Kunbh, or river of the Kumbh or Kunbh. Those words, كنبه or كنبه, signify, 'a water-pot,' or 'vessel,' in Sanskrit; and whether we can connect those meanings with the Lake Manchar which, in its centre, is somewhat in the form of a pot or water vessel, being very deep, with steep, rocky sides, is rather doubtful, but the idea crossed my mind. The words cannot be intended for the Sanskrit word for a spring etc., for that is कुण्ड—*kund*. The 'Arab writers do not allude in the slightest degree to this at present great lake, which seems hardly to have existed as a lake in those days. Perhaps at the period in question only the deep portion contained water, and hence its similarity to a gigantic *kunbh*.

With respect to Tahl-tí, I do not presume to say that the present *mauza*—the "Talti" and "Tultes" of the maps—is the identical place referred to by Mír Ma'súm, for a thousand changes may have occurred since that time. I merely mention the fact of such a place existing under that name in the exact locality mentioned, and where also is a Tahl-tí *ghanḍ* or lake. That Muḥammad first reduced Bahman-ábád, and then moved to Aror, there is no doubt whatever. Mír Ma'súm says, that Rá'e Dáhir, finding that Muḥammad had crossed to Tahl-tí, despatched a force to oppose his advance to the *kol-i-ab* or lake of کنجری—Kinjri—or کنگری—Kingri—(about twenty miles west of the ruins of Aror), upon which, the 'Arab commander marched on رافیان—Ráfián—(in other copies of the original رقیان and رقیان). There is a Ráfi Dero ferry south-west of Kingri, and detached part of his troops to encounter Rá'e Dáhir's forces, and overthrew them. This lake is said, in Mír Ma'súm's work, to have been crossed by the 'Arab army by means of one boat, which took three men at a time, which, of course, is absurd.

After this, according to the same writer, Muḥammad moved with his whole force against Aror; and, in an engagement, which took place on the 10th Ramazán, 93 H., near that city, Dáhir was defeated and slain.

From this it will be noticed that he leaves out nearly every thing that occurred at Bahman-ábád during six months, and all the events which took place on the banks of the Mihrán before that, including Dáhir's death, and has transferred them to Aror instead; and, consequently, has shown, that, for the early history of Sind, he is not

Muhammad, leaving a governor there, moved towards Aror and Baghrúr,

to be relied on; while the *Qhagh Námah*, contains the relation of events generally from the statements of eye-witnesses of what they relate.

As soon as Jai Sēpha, son of Dáhir, reached Bahman-ábád, he endeavoured to rouse his brother and kinsmen to oppose the invaders with energy, but without result: there was no combined effort made. Accordingly, he despatched letters to his brother Fúfí, at the capital, Aror; to *Qhagh*, son of Darsiyah, Dáhir's nephew, who held Bábiyah [the Pábiyah of Elliot before, but, now he makes it Bhátiya although there is no 'h' in it] on the south side of the river Biáh [which was subsequently held by Kaksah, son of *Qhandar*, Dáhir's uncle, according to the same authority]; and to Dahol or Dahúl, another son of *Qhandar*, who held Núdiyah and Kai-káun [the "Kikán" of the Balázari—tracts west of the 'Ab-i-Sind]. Muhammad, son of Kásim, on the other hand, after the death of Dáhir, and capture of Ráwar, as before related, moved towards Bahman-ábád, between which two places were two fortified towns Bahrúr and Dháliyah. The first offered obstinate resistance, and was only captured after two months' investment, and the latter nearly as long, but without much opposition. The people, at last, finding they could not hold out, despatched their families from thence by the bridge over the Manhal [branch of the] river; but, on the Musalmáns becoming aware of it next day, they were pursued, and a great number slaughtered. Such as escaped made their way towards Hindistán by the Ramal territory [the tracts inhabited by the Bhaṭī tribe], and the *registán*, or sandy desert [evidently towards Jasul-mír, the feeders of the Hakrá from the direction of Poh-karn, at that period, having ceased to flow], towards the territory of Siro [Sirohi?]. There is a "Sero," eighty-one miles above Bahman-ábád, east of Sayyidah] of which Díw Rá [or Ráj, as in Elliot] was ruler. He was the uncle's son of Rá'e Dáhir [and, consequently, must have been son of *Qhandar*].

Dháliyah having been given up, Muhammad located there Núbah, son of Daháran, son of Dháliyah, and charged him with the care and superintendence of boats [it appears to have been on the Puránah Dhorah branch of the Mihrán of Sind] along the banks from that place to Dadahah-Tiyah [possibly Wadahah-Tiyah], which was a *farsang* [three miles] from Bahman-ábád. [See Elliot, page 176.] Another march from Dháliyah brought the 'Arab forces to the banks of the Jalwálí *Nahr* [canal or minor channel] on the east side of Bahman-ábád [which Elliot's editor very wisely supposed was the "Falaháí," which is only thirty-three miles south-west of Bahman-ábád] and there they took up their position.

Bellasis, in his interesting account of the ruins of Bahman-ábád, which he discovered, appears even to have found what we may well suppose was the site of the 'Arab camp during the investment. He says: "On my last visit to Brahman-ábád, I made inquiry of an old cultivator if he had ever seen any of the round solid balls of pottery mentioned in my first paper. 'Šáhib,' rejoined the old man, 'come to the Top Khánah [arsenal], and I will show you plenty.' I followed his guidance, and he led me outside the city walls, and across the dry bed of the river, and there, in the plain, sure enough were a number of these pottery balls. I could distinctly see the square heaps in which they had been piled in regular rows like round shot; and, scattered over the plain, numbers of single ones were to be found, slightly embedded in the soil. They were of various sizes, some as large as 12-pounders, others about the size of billiard balls. The old man accounted for there being so many scattered about the plain by saying that in ancient times a great battle had

but the last name cannot be correct, because it is mentioned previously

been fought on that spot. The smaller balls might have been used in a sling, but the larger ones would have required some engine like the balista to propel them."

To return, however, to the subject of Jai Sēpha. Not liking apparently, to be shut up in Bahman-ābād, he had retired to Qhanī-sar [Tibbah-i-Qhanī-sar. See farther on.], but he had previously selected and appointed sixteen of the chiefs of the place to the charge of the gates, to guard them as leaders of the troops. Four gates are mentioned, but the names of five are given; namely, the Jarigari, which may be that of the citadel, as the others are numbered, and 1. Bhārand or Bhāring; 2. Sātiyā; 3. Manorah; and 4. Sālāh. On Monday, 1st Rajab, 93 H. (April, 711 A. D. [This cannot be correct, as Dāhir was only killed two months and ten days after that date.], Muḥammad intrenched his position, and prepared to attack Bahman-ābād, which was said to contain 40,000 fighting men. Fighting went on continually, until six months had passed away [the hot season included], and Muḥammad and his forces were become dispirited and almost hopeless of taking the place. At length on Monday, the end of Zi-Ḥijjah, the last month of the year [17th October, 711 A. D.] news of Jai Sēpha was obtained. He had returned from the country of Ramal, which is called Bhāṭiāh, and had begun to infest the roads and harass the Musalmāns by causing a scarcity of forage and food. On this Muḥammad had to send to Mukah, the Bishāiyah, to ask him what had best be done, and he advised the despatch of forces to drive Jai Sēpha away. This was done, and Jai Sēpha, who appears unable to relieve Bahman-ābād, sent his family and effects by way of the *registán*, or sandy desert, [the tributaries of the Hakra coming from the eastward, from the side of Poh-karn and Jasal-mir, as elsewhere stated, had at this time ceased to be perennial streams and did not reach it, hence that part had become a desert.] to a place called Jangun, and to 'Urā or 'Orah, and Kābā [Khābo?] in the territory of Chitrūr; and, at last, retired into the territory of Kash-mir.

Jai Sēpha having retired to Chitrūr, no hope remained of being relieved and the investment raised; and the principal merchants and traders,—who always fear for their money bags, and their own interests—under the plea, that without leaders to lead the troops, those who could have done so, having been killed, it was impossible to hold out longer, duped four of their number to enter into communication with the Musalmān commander. The up-shot was, it was agreed, that a sally should be made from the Jarigari gate by partizans of theirs, under pretence of fighting, and that, on the appearance of the 'Arabs they should take to flight, and leave the gate open for them to enter; and thus was it treacherously betrayed to them. As soon as they got inside, and appeared upon the walls, the garrison (or as many as could) endeavoured to escape by the eastern gate, which of the four is not named. About 6,000 fighting men were killed; some say 16,000, but this seems to refer to those who had perished during the investment, and not to those killed when the place was taken. At this place Rānī Lādī, one of Dāhir's wives, was made captive, whom Muḥammad afterwards purchased, and then entered into matrimony with her.

After this success, Muḥammad wrote an account of the proceedings to Amīr Ḥajjāj, in which he says, that he had written his report at a place on the higher part of the Jalwālī Jō'e (canal or minor channel). Before leaving Bahman-ābād, and moving northwards, he settled the government of southern Sind. He placed Nūbah [already mentioned as having been placed in charge of Dhāliyah], son of Daharan,

along with Ráwar, which lay on the west side of Bahman-ábád, and was

son of Dháliyah, in charge of Ráwar and its dependencies, together with the charge and supervision of vessels and boats, to have them (some) kept in readiness; and he ordered that every vessel or boat which should arrive or depart, from above or below (stream), should be taken to the fort of Ráwar if it contained men or war materials. The boats and vessels above Dháliyah were placed under the supervision of an 'Arab officer, Ibn Ziyád-al-'Abdí. Other Wálís and 'Amils were nominated to the charge of Siwistán, Níún, Dháliyah, and other places; and the parts inhabited by the Jats were likewise brought under control.

Having disposed of the affairs of Bahman-ábád and the Lohánahs, and all parts to the east and west, and in the environs and neighbourhood thereof, on Thursday, the 3rd of Muḥarram, 94 H. (9th October, 712 A. D.), Muḥammad marched with his forces to a place called Muthal [in one MS Muthal. Muthalo of the Sindis, which appears in one map as "Mothilo" and in another as "Mothito"! ] in the neighbourhood of Sáwandí, also called Sáwandí of the Sammahs. where there was an *ab-gar* and a grassy plain, and which was called the Karbhár Dandh (*dhand*), and on the shore thereof he pitched his camp. All the dwellers in that part were Samanís (Priests), Nahr-bán (canal diggers?), and merchants and traders, who all came out to receive him, and submit to his authority; and in the parts around were Jat peasantry. From thence Muḥammad marched to Bharúr or Bhírúr [mistaken by Mir Maḡúm and others for Baḡrúr, which was in quite a different direction], and despatched officers to administer the affairs of that place and of Kaundbar. He then moved into the tract of country peopled by the Sammah tribes, and nominated a chief over them. Having provided for the administration of the affairs of the Lohánahs, he came among the Sihtahs, arranged their affairs, and required them to guide him towards Aror.

I may here notice, that, from the foregoing account contained in the *Qhach* Námah, Ráwar and Dháliyah appear to have been situated on the east side of the western branch of the Mihrán of Sind, which separated into two channels forty miles above Bahman-ábád, as shown in the 'Arab map. Also, that there is no actual mention of that branch having been crossed to get to Aror; but it was probably passed at the stage where the Karbhár *Dhand* is mentioned.

I must also remark that the dates given in the *Qhach* Námah are either wrong or confused. Debal appears to have been taken in the first month of 93 H., but the letter of Hujjáj, acknowledging the account of its capture, is dated in Rajab, the seventh month, and took sometime to come, a couple of weeks at least. After this Muḥammad moved against Siw-istán, and after his return from thence it was some months before he could cross the Mihrán. Several other letters passed between them, and yet between the letter of Rajab and the 10th of Muḥarram when Dáhir was killed, only the months *Sha'bán* and ten days of Muḥarram intervened. After that, when Ráwar had fallen it took two months to reduce Bahrúr, and the reduction of Dháliyah took nearly as long. This would bring us to the end of the year 93 H.; and yet, it is said, that he appeared on the 1st Rajab, 93 H. before Bahman-ábád, two months and twenty days before Dáhir was killed; and after being six months before Bahman-ábád, it was only the end of Zí-Hijjah, the last month of 93 H., that news of Jai Senha was received which led to its capture. Then it must have taken some little time to settle the affairs of Bahman-ábád, and yet he is said to have marched towards Aror from thence on the 3rd of Muḥarram 94 H. According to

captured after Dáhir's defeat, and was close to the east bank of the western branch of the Mihrán. It appears to refer to the Bahrúr of the Qhach Námah. First, the people of Táwandari [the name is somewhat doubtful. See the Samandúr of the Kazwiní, page 211, and Samand of the Istakhari, page 211] submitted to him, and he reached Basmad [not to be mistaken for Basmíd nearer Multán near which the Mihrán flowed] which also submitted, after which he appeared before the capital, Aror. This place was situated on a hill, and he had to besiege it for several months; it finally capitulated on terms.

Having effected these successes, Muḥammad advanced to اسكندريه,<sup>190</sup> which was situated on this side, that is, on the south side or left bank, of the river Bíáh.<sup>191</sup> This was captured, and was in ruins when the author wrote.<sup>192</sup> After this Muḥammad crossed the Bíáh, and

the time occupied in the different operations as stated in the Qhach Námah, he could scarcely have started for Aror before Rajab, 94 H., otherwise there is but four months and twenty-three days from the death of Dáhir for the completion of operations which it is said took upwards of ten months to accomplish, and consequently, there is an error somewhere.

<sup>190</sup> This word, being without points, might be mistaken for one word, but it is merely the Sindí proper name Sikah, with the 'Arabic prefix 'al,' as distinctly shown in the Qhach Námah. See note 192.

<sup>191</sup> This is incorrect. Sikah was close to the east bank of the Ráwí, but Bábiyah was on the left or south bank of the Bíáh, and Asal Kandah or Askandah was on the north of the Bíáh, as shown in the following note.

<sup>192</sup> Certain enthusiastic writers have supposed that the name of the *Oxydracæ* is derived from the name of Uchchh, which they also suppose was in existence two thousand two hundred years ago; while some of those who labour under this supposition call it by the incorrect names of *Uja*, *Uch*, and even *Uk*. The only doubts entertained on the subject, apparently, arise in the minds of more recent European writers because "Arrian and Strabo seem to say," that it [the town of the *Oxydracæ*] stood "on the west bank of the Acesines [the Qhin-áb]."

Uchchh stands on the east bank of the Qhin-áb and its tributaries now, but, in former days, and down to comparatively modern times, it stood on the west bank of the Bíáh, or Rud-i-Sind of the old writers, and a little above its junction with the Sindhu or Ab-i-Sind; and, at the period in question, the Qhin-áb and other Panj-áb rivers were tributaries of the Bíáh. The Greek accounts, however, show, that the country or town of the *Oxydracæ* lay north of the Ráwí, and in the Raghin-áb Do-ábah, as shown farther on.

Elliot (vol. 1, p. 109), quoting the "Majma'at Tawárikh," on the division of Sind by the son of Kafand, one of the ancient kings, said to have been contemporary with Alexander the Great, states, that, "One king [governor is meant] he established in 'Askalandusa. Upon another he bestowed the country of Zor, to which *Ang* [Uch?] is attached." In a note, he says, "It is written اسكندريه,"—with two purely 'Arabic letters, ع and ق?—"but the name is generally accepted as 'Askaland, or 'Askalandra, and the termination *usa* has not been found elsewhere, [that is, in one MS. only]. May not the passage be read—He established one king

moved towards Multán and invested it, first defeating the infidels out-

at 'Askaland and Sah? or may not the last word signify—and three (dependencies)?'. Yes, if "*sah*" meant *three* in Persian, only it does not.

Such are some of the foundations on which are based the *identification* of the *Oaydracæ* with *Uja*, *Uch*, or *Uk*. Very solid foundations, truly!

At page 104 of the same volume, relating as far back as the traditional period of the fall of the Pándús, where this supposed same place is mentioned as *Askaland*, but where neither *Uja*, nor *Uch* are mentioned, we are referred to Appendix X, which (p. 365) states, that, "The *Askalanda*, *Asal-kanda*, and *Askalandra* of the Chach-náma, is the same as the *Askaland*, and *Askaland-Usa*, [leaving out, of course, all reference to the 'Arab letters in the word] of the *Mujmalat-t Tawdríkh*, and the *Askandara* and *Askanda* of the *Tuhfatul Kirdm*. The close correspondence of the name, especially in the last instance, induces us at once to recognize it as identical with the Alexandria built at the confluence of the Acesines with the Indus; But a little examination will show the resemblance to be more specious than real. \* \* \* The ancient kingdom of Sind was divided into four Satrapies of which the third (p. 138) comprised the fort of Askalanda and Máibar. Now *Máibar* and *Chachpúr* still exist [the same since the time of the Pándús, probably?] under the modernized names of *Mírbar* and *Cháchar*, close together at the very junction of the Acesines and the Indus. Consequently, *Askalanda* must have been higher up the river, as subsequent passages will show." In a foot-note to the name *Máibar* the Editor says, "The text has *Yáiba*, but *Pábiya* is the more general spelling," but, in the extract at page 138, he has "*Askalanda* and *Pábiya*, which are called *Tulwára* and *Chachpúr*;" and in another foot-note, he says that "the name is written *Páya* and *Báya*, *Bábiya*, and *Pábiya*: the last seems the preferable form".

I may mention that the *Cháchar* here referred to, some forty years ago, was six miles below the junction of the *Pangh* Nad, or *Panj Ab* with the Indus. *Mithan dá Koṭ* was then three miles and a half below the junction; and about ten years since, *Mithan dá Koṭ* was eleven miles below the junction, such are the continual alterations. There is no *Mírbar* now, but there is a *Juja* fourteen miles south-east of *Cháchar*. Why not have pressed that into service? Farther I may mention, that it is only within the last century that the junction of the *Pangh* Nad with the Indus has taken place within twenty-four miles north-east of *Cháchar* and *Mithan dá Koṭ*, and how far off it was before who shall say. Where it was in the last century will be found farther on.

After all this, supposing that the courses of the rivers have remained precisely the same for over two thousand years, although we find so much change in forty, he says: "Its [*Askalanda's*] proximity to the *Bías*, and its name of *Askaland-Usa*"—about which, at page 109, he was doubtful whether it was part of the name or not—"lead us to regard it as *Uchh* of more modern times." Yet he adds that, "That place bears marks of most undoubted antiquity, and the absence of all mention of it in the Chach-náma, where we are, both in the time of Chach and Muhammad *Kásim*"—here the father's name is again brought in as that of the son—"introduced to many transactions in its neighbourhood, can only be accounted for that it is *disguised* under some other appellation."

It certainly seems strange that *Uchgh* should not be mentioned in the *Chach Náma*, and in the earlier works on Sind, because we know from the *Tuhfat-ul-*

side, who fled in disorder to regain the shelter of their walls. After

Kirám that it was an ancient fortress on the frontier of that country. It states, that Rá'e Sahasí remitted the taxes of his people on the condition that they should increase the height of six fortresses: namely, *Uchchh*, Máthilah, Síw-rá'í or Síw-rá'hí, Ma'á'or Ma'úh, Aror or Alor, and Síw-istán." See my "NOTES ON AFGHÁN-ISTÁN," etc. page 567.

*Uchchh* was several times destroyed and repaired, from the time of Sulṭán Jalál-nd-Dín, the *Khwárazm Sháh*, to the time of the *Arghún* dynasty of Sind. Ibn Batúṭah says, in his time, *Uchchh* was "a large city on the Sind," and that "Multán was then the principal city of Sind."

Elliot also speculates on "the other ancient *Uchh* [sic], now in ruins,"—just as the other has been for a long time—"near the junction of the Hydaspes with the Acesines." Here again he takes it for granted that the present junction has always remained the same; but in 801 H. (1398-99 A. D.) we know that it was twenty-six miles lower down than at present, and that it was continually altering; that, before that again, it was many miles higher up; and in the last century was near *Qhhan-tarah*. See farther on.

With respect to the name of *Uchchh*, there are no less than three places so called, still existing, and all of some antiquity. —1. *Uchchh* which is forty-seven miles north of *Shikár-púr*, and twenty-seven to the northwards of *Khán Garh*, now Jacob-ábád. It is in *Kachchh* or *Kachchhi*—a common term for an alluvial tract, not peculiar to this part any more than to *Kachchh Bhuj*—and is simply known as *Uchchh*. It is not far from the *Sind Hollow*, in which the *Ab-i-Sind* or Indus, or a branch of it, once flowed, as shown in the account of that river farther on. 2. *Uchchh-i-Gul Imám*, a strong fort in the last century, but now in a state of ruin, twenty-one miles north-north-west of *Shor Kot*, and about eleven miles south-west of the late junction of the *Bihut* [*Hydaspes*] and the *Uhin-áb* [*Acesines*]. I say *late*, because it has probably altered considerably since the Survey map I refer to was made a few years since. This is the "*Uch*" which Elliot (vol. 1, p. 367) considers "as offering a far more probable identification," and is seventy-two miles to the northward of *Multán*. 3. *Uchchh-i-Jalá'í*, or *Uchchh-i-Sharíf*, formerly, that is to say within the last century or thereabouts, consisting of seven small contiguous villages, or rather quarters, enclosed within one wall. Now it consists of three rather large villages on mounds, contiguous to each other, and connected by a wall of brick, which lately was in a dilapidated state. These villages or towns stand on high, artificial mounds, the neighbourhood having been at all times liable to be swept away by the *Ab-i-Sind* or Indus, as related in another place. The western-most of the villages is small, but contains a celebrated shrine, within a large and handsome old *Muhammadian* building, sadly out of repair. This is known as *Pir ká Uchchh* or *Uchchh-i-Makhdúm*, and the houses have sprung up around it. It is said to have been called *Walli-har* in ancient times, before the *Makhdúm* in question took up his dwelling there. The eastern-most of the villages is the largest, but there are no walls now standing, the ruins of the gateways however can still be seen. Some little trade is carried on with Sind in grain, which is sent down the river in boats. In the neighbourhood are very extensive ruins of the ancient stronghold, embosomed in dense groves of date trees and venerable *pípals*. Many of the buildings are almost entire, and could easily be made habitable. They are constructed in the best style of *Muhammadian* architecture of kiln-burnt bricks.

sitting down before it for a considerable time, the supplies of the 'Arab

The site is undoubtedly ancient; and yet, strange to say, it is not mentioned in the Qhch Námah; nor, under that name at least, by the 'Arab writers, including the Balázari, in his history; nor by the other Muḥammadan historians of the time of Sulṭān Maḥmūd of Ghaznī and his sons, namely, Al-'Ubbā, Bū-Riḥān, the Baihaḳī, and the Gardāizī. I believe, however, that it is mentioned by these historians under the name of Bhāṭīah, (called the country of Ramal in the Qhch Námah); and for this reason.

The author of the "Ṭabaḳāt-i-Nāsirī," the next author who follows them that we know of, mentions (page 419), the "deliverance of Multān from the hands of the Ḳarāmiṭah" heretics, but Uchch is not referred to; yet, immediately after (page 451) he mentions the Sulṭān Mu'izz-ud-Dīn, Muḥammad-i-Sām, marching towards Nahar-Wālah by way of Multān and Uchch. In the account of his victories, however (page 491), his "victories over the Ḳarāmiṭah of Multān and Uchch" are distinctly stated, but, there is no mention of the Bhāṭīah among them, although the capture of the stronghold of the Bhaṭī tribe is distinctly mentioned. The author knows Uchch, for he was for a time in Sulṭān Nāsir-ud-Dīn, Ḳabā-jah's service there, being in charge of the Firūzī College in 621 H. (1227 A. D.), and holding the office of Kāzī to the forces of 'Alā-ud-Dīn, Bahram Shāh, the Sulṭān's son. It is strange that the Bhāṭīah are not noticed by him. Yet others relate that the Sulṭān delivered Multān from the Ḳarāmiṭah, and annexed the territory, and then invested the Bhāṭīah, (which is the plural of Bhaṭī), within the walls of Uchch; and that, after its fall, it was entrusted to 'Alī Karmākh's charge together with Multān. It is evident from this, that those authors whose works have been translated, such as 'Ubbā's, did not mean that there was any town or fortress called Bhāṭīah, but meant the stronghold of the Bhāṭīah, that is, of the Bhaṭī tribe, and their stronghold, we know, was Uchch, which they appear to have obtained possession of sometime before the reign of Sulṭān Maḥmūd of Ghaznī, when the power of the 'Abbāsī Khalīfahs over Sind and Multān was merely nominal. Elliot, therefore, was right in supposing that Uchch was "disguised under another name"; and I believe that the sentence in the "Ṭabaḳāt-i-Nāsirī" at page 419, was, before the text had been interfered with, that "he marched an army towards Multān and Uchch and delivered them out of the hands of the Ḳarāmiṭah"; and this would account for the "stronghold of the Bhāṭīah" not being here mentioned by its author.

With respect to Sulṭān Maḥmūd's capture of the stronghold, the Gardāizī, a contemporary writer, states, that the Sulṭān attacked the fortress of the Bhāṭīah in 396 H. (1005-G A. D.), and that Bajrā (بجرا), the Bhāṭīah, so called on account of the number of his men, his success, and his great haughtiness [बज्र—*bajra* or *wajra* signifies 'a thunderbolt' in Sanskrit], put his forces in array to oppose the Sulṭān, and sent them out against him, while he himself kept aside, near the skirts of a *jangal*. Some of the Sulṭān's troops surrounded it, on which the Bhāṭīah Rājah drew his dagger and killed himself. Great slaughter was made among his tribe, the Rājah's head was brought in, and a great number of elephants were taken. It was after this that the Sulṭān attacked the Ḳarāmiṭah of Multān, for which I have not space here, but it will be related in another place.

Bū-Riḥān mentions this tribe in several places as though it was the name of a place, as بهاتي and بهاتي, in the printed text, but, in the Index, as two different



force fell short, and they had to eat some of their animals for food ;

places. The passage is, with three exceptions, much as Elliot translates it (p. 61), namely : " West of Narāna [نرانة and نرانة in MSS. نرانة in text] is Multān distant fifty *farsangs*; thence to [and to?] Bhātī fifteen. South-east from Bhātī is Arūr, distant fifteen *farsangs*. Bhātī is situated between two arms or branches of the Sind Rūd." The name Arūr is doubtful: the MSS. have ارور - ارور : if Aror is referred to, that is nearly south-west. The Sind Rūd is the Biah and its tributaries, not the Indus (See *ante* page 211, also page 221, note 163); but the word rendered " Bhātī " here by Elliot, in his extract, is very different at pp. 37, 39, 40, 77, and 79. According to this statement, the stronghold of the Bhāṭīyah would lie *exactly midway between Multān and Aror*. If we calculate the thirty *farsakhs* between Multān and Aror at eight *mil* to the *farsakh*, which is certainly not correct, it would make two hundred and forty miles, which, as the crow flies, is just the distance between those two places; but Uchchh, the fortress of the Bhāṭī tribe or Bhāṭīyah, is but seventy-five miles (equal to twenty-two *farsakhs*) from Multān, while Aror is one hundred and sixty (equal to nearly forty-seven *farsakhs*), from Uchchh; consequently, by Bū-Bihān's account, if we are to place entire dependance on it, which I am hardly disposed to do for several reasons, his " Bhāṭī " and " Bhāṭīyah " cannot represent Uchchh, unless we read his statement to mean that this Bhāṭīyah lies about midway between Multān and Aror, without taking distances into account. There is still a Bhāṭī Wāhan in this part, an ancient place, once the chief town of a *naḥall* of the Borān-i-Panch Nad district of the Multān *gībah*, which is situated just midway between Uchchh and Aror; but, from what other writers state, as will be seen farther on, there can be little doubt, that, under the name of the town or city of the Bhāṭīyah, Uchchh-i-Sharīf is referred to.

Elliot, in the two first volumes of his " Indian Historians," tries, by many arguments to prove that the Bhāṭīyah here referred to, is what he calls " Bhera on the Jailam," that is, Bahrah, no less than one hundred and ninety-two miles, north-north-east of Multān; while from several translated passages in his own work, its whereabouts is distinctly shown. All these errors arise from the supposition that the courses of the rivers have never changed, and, that the tracts east of the Indus have always been a desert. See Vol. II, page 439. For example: Sulṭān Maḥmūd returning from the expedition against Somnāth in 417 H., set out with the object of returning by Mangūriyah, the ruler of which was a Muḥāidah or Karānīyah. On the news of his approach the heretic fled to the dense forests in the vicinity of Mangūriyah, but the Sulṭān having surrounded the one in which he had taken shelter, came upon him and his followers, the greater number of whom were either killed or drowned in endeavouring to cross the river (the Makrā or Wabindah), and very few of them escaped.

From thence the Sulṭān, having crossed the Ab-i-Sind near Multān, moved against the Bhāṭīyah, and after reducing that refractory people to submission, returned to Multān again, and from thence to Ghuznīn, which he reached in Šafar, 417 H. (about 11th March, 1026 A. D.). Now how is it possible that " Bhera on the Jailam " can be the place referred to? There is a " Bhera " just five miles east of Aror, if a " Bhera " is required.

After this, in the year following, a naval battle was fought; and it appears to have taken place near the then place of junction of the Ab-i-Sind with the Sind Rūd or Rūd-i-Sind wo Hind, on the then Panch Nad consequently. I believe it was fought

but, at this crisis, a man came to Muḥammad and promised, if admitted between Uchch and Ghaṇṣ-pūr, which I suppose to be the position of Basūf of the 'Arab writers or very near it; and, possibly the action may have been fought a little lower down.

The Gardāizī states, that, as the Sulṭān had sustained great annoyance and much insolence from the Jāts of Multān and the Bhāṭīah, on the side of the Ṣiḥūn [a name applied by the early writers to the Panḥ Nad as then existing] on his way back from Sounāth, he now determined to chastize them thoroughly for it. When the year 418 H. came round he set out from Ghaznīn, and on reaching Multān, gave orders for the construction of 1,400 boats, each of which was to be fitted with three strong [and sharp] iron rams, one in the bow, and one on each side, and strong enough to cut and destroy whatever came in contact with them. In each boat twenty men were embarked, armed with bows and arrows and flasks of naphtha. The Jāts hearing of these preparations sent away their effects to distant *jaṭrahs* [or *bets*: tracts encircled by minor channels of the rivers], and prepared to encounter the Sulṭān's vessels with 4,000 of their own, some say with 8,000, in each of which were a number of armed men. They accordingly moved to attack the Sulṭān's fleet; and in the action which ensued, they were nearly all sunk or destroyed by the rams, or the naphtha. As the banks of the Ṣiḥūn were occupied by troops, horse and foot, and elephants, those who escaped to land were captured or slain. Continuing to follow the remainder of their vessels along the banks [down stream; for they could not go up under such circumstances], the troops reached the place where the Jāts had deposited their property and effects, which were seized by the victors, and great numbers of other captives were likewise made. After this affair the Sulṭān returned to Ghaznīn.

In the following reign, when Aḥmad-i-Nīāl-Tigīn, feudatory of Lāhor, rebelled against Sulṭān Mas'ūd, being defeated by the troops sent against him under Tīlak, the leader of the Hindū troops of the Sulṭān, Aḥmad had to evacuate Lāhor, and retired towards Multān with the object of reaching Maṇṣūriyah of Sind. He was harassed the whole way by the Hindū tribes, Tīlak having raised the whole province against him. From Multān he moved towards the Bhāṭīah (stronghold) whither some of the Hindū (Bhāṭī?) chiefs had retired. The chief of the Bhāṭīah, however, was unable to stop the progress of Aḥmad-i-Nīāl-Tigīn; for the small force of Turks with him (two hundred men) was still unbroken; and the chief had to furnish him with the boats he required to enable him to cross the Sind Rūd [or Rūd-i-Sind wo Hind, i. e., the Bīāh and its tributaries], between two branches of which Bhāṭīah was situated, on his way to Maṇṣūriyah, near which latter place, in attempting to cross the Mīhrān, he was subsequently drowned.

How is it possible that this Bhāṭīah can refer to "Bhera on the Jailam"?

Cunningham ("Ancient India," p. 256) considers "Pābiya" to be "Bhāṭiya," of others, but as he also considers it "probably the same place as Talhāti where Jām Janar [Jām Jūnār, the Sammah] crossed the Indus, or perhaps also the same as Mātīla or Māthīla," we may easily dismiss that theory, because the Jām crossed the Mīhrān where the 'Arab leader is said to have crossed before him or nearly so, at Talh-tī, more than one hundred miles below Aror on the south-west; while Māthīlah or Māthīlo is thirty-seven miles above Aror to the north-eastwards.

With respect to the seven contiguous villages surrounded by a wall which constituted Uchch a little over a century since, here is a specimen how some writers

to quarter, to point out a *nahr* or river [also a canal] by means of which

will jump at conclusions. Vincent, in his "Navigation of the Ancients," on the subject of the "Oxydracæ Outche," says: "It is somewhat singular that Arrian should mention these people as cantoned into departments, and their magistrates as presiding in each separate canton, while the moderns distinguish them to this day by the appellation of the "Seven Towns of Outche." This, he says, is on the authority of Tieffenthaler, Vol. 1, p. 119, and de la Rochette's map.

Cunningham, also, appears to agree in this. He says: "It has been supposed, indeed, that the name of the Oxydracæ is derived from the old town of Uchh, but their position according to Strabo and Arrian appears rather to have been on the western side of the Akesinos." See the first paragraph of this note.

From the accounts of the campaign of Mīrzā Shāh Husain, the Arghūn Mughal ruler of Sind, against the Langāh Jūṭ ruler of Multān in 931 H. (1521-25 A. D.), Uchchh was still considered to be a very strong place, and enclosed within lofty walls. He first reached Siw-rā'ī, one of the six forts mentioned in the Tuhfat-ul-Kirām, the mounds of which were to be raised, and still one of the strongest in that part, which was taken and destroyed, after which the Balūchīs, who held these parts under the Langāhs, retired within the walls of Uchchh. The Mīrzā subsequently reached Ma'ū, also written Ma'ūh, another of the six forts above referred to, and pitched his camp near a *kol-i-āṭ* or lake at that place. From thence he reached the shrines of the *Shaikhs*, of which the *Shaiikh*, Rūh-ullah, Kureshī, had charge; then to the boundary of the Badar (بدار) people, and from thence to Uchchh. It was captured and destroyed and all the wood put on boats and sent to Bakhar, according to the historian, Mīr Maḡūm of Bakhar; and he states, that what fortifications were standing when he wrote, were of Mīrzā Shāh Husain's erection.

In after years, down to within the early part of the present century, the place suffered greatly in the constant hostilities between the *Shaikhs* of Uchchh and the Dā'ūd-putrahs, hence the fortifications raised by the Mīrzā are in ruins. See my "NOTES ON ARGHŪNISTĀN," etc., page 655.

To return, however, to the place of so many names supposed to be Uchchh, I do not consider that either of the places called Uchchh are referred to, but a totally different place. All these three places certainly lay *west* of the Qhin-āb (but only as a tributary of the Biāh), even after it changed its course from the *east* to the *west* side of Multān. One still lies near the *west* bank, and another *west* of the Ab-i-Sind or Indus; and Uchchh-i-Sharīf also continued *west* of the Qhin-āb down to comparatively recent times, but, when the Qhin-āb (along with the other rivers forming the Panj Nad), changed its course, as mentioned above, Uchchh-i-Sharīf was placed in the Bist-Jālhandar Do-ābah, and continued there until the Sutlej deserted the Hakrā to unite with the others and formed a new Panj Nad, when it was shut out of that last-named Do-ābah into the district or tract of country styled Berūn-i-Panj-Nad, or Extra Panj-Ab, and was placed on the *east* side of the river. But, since the time of Arrian and Strabo, it is probable that this, as well as the other rivers of this part, have altered their courses hundreds of times; and it is very certain, as will be shown further on, that few parts of the territory now known as "the Panj-āb," have seen greater changes than the tract between Multān and Aror in one direction, and Bahāwal-pūr and Rūjān in the other, the rivers having, at different periods, flowed over every part of it; and consequently, in no place, was any "city founded by Alexander," less likely to have had any long existence.

the people of the place received their supply of water from the river.

Let us now see what history says respecting Asal Kandah, etc.

After Rá'e Qhach had attained sovereignty over Sind, he set out from Aror for the northern frontier of his territory, between the Ab-i-Sind and the Hakrá, and reached the *híṣār* of بابية—Bábiyah, also written باية—situated on the south bank of the Biah [the Yabihá of Elliot, page 202], which was afterwards known as Qhach-púr, and captured it. Finding that the enemy had retired within the fort of اسل كنده—Asal Kandah or Usal Kandah, also written اسكندة—Askandah, anciently called Talwárah, he left a garrison in Bábiyah, crossed the river Biah, and appeared before Askandah, or Asal Kandah, which latter word, being without points, might be transliterated in several ways. Having gained possession of that fortified place, Qhach moved towards Sikah of Multán. The ruler of Multán, hearing that Qhach had reached the Biah, issued from that stronghold, and advanced to the banks of the Ráwí, in order to support his nephew, who was in charge of the fortress of Sikah, opposite to Multán on the east side of that river. They then moved to encounter Qhach and oppose his crossing that river; and Qhach remained encamped near the ford over the Biah [See the strange note by Mr. Dowson to page 142 of Elliot's "Historians," Vol. 1, on the "Bías"] until the water decreased sufficiently, and then he effected the passage. He was then in the fork, so to say, between the Biah and the Ráwí, which united a short distance from where he crossed, and consequently, in the Bári Do-ábah. He then moved towards a place higher up, where there were less obstacles in crossing, and reached the *ḡaḡbah* of Sikah, defeated the enemy outside the walls, and invested the place for some days, after which it was evacuated, and the governor fled to his uncle at Multán. The latter, with his nephew, and all their available forces, then marched out of Multán to encounter Qhach on the west bank of the united Qhin-áb and Ráwí, in case he should pass over that river. Qhach effected the passage, defeated the Multán chief in several encounters, and the latter then retired within the walls of that fortress, in which he was closely invested by Qhach. The Qhin-áb then united with the Ráwí north-east of Multán.

According to the Qhach Námah, which I have said before gives a much more detailed account of events in the time of the 'Arabs, they followed the same route from Alor or Aror as Qhach had previously taken in going against Multán. Muḥammad, the son of Kásim, having disposed of the affairs of Aror, and installed a governor there, marched from thence towards Multán until he reached the fort of Bábiyah, situated on the south, or left bank of the Biah (the site of "Pubbeer walle," of the maps of the present day? See the notice of the Biah farther on), and which place, Mír Ma'súm of Bakhar says, was called Qhach-púr in his day. This Bábiyah was an old place in which Kaksah, son of Qhandar, Rá'e Dáhir's brother, who had fled from the battle-field near the Mihrán when Dáhir was slain, had taken shelter. He, on the appearance of the 'Arab forces, came out and submitted, and was taken, it is said, into the confidence of the 'Arab leader. In another place, however, it is said that the Hindús evacuated that place.

After this, Muḥammad, leaving a garrison in Bábiyah, crossed the Biah—I wish to draw attention to this fact—that is to say, from the southern to the northern bank of that river, and appeared before the fortified town, the name of which is written اسكندة, اسكندره, اسل كنده, اسكندرية, علة كنده, اسكند—Askand or Iskand, 'Alah Kandah or 'Ulah Kandah, Asal or Usal Kandah, Askandarrah or Iskandarrah, and in other ways, in different places, in as many different MSS., for we do not know for certain the

of Basמיד,<sup>193</sup> and which flowed into the city into a *haуз* or reservoir,

vowel points—the people of which issued forth to oppose him. Now how is it possible that this place situated on the north or right bank of the Báh, as it flowed in its old bed, could be “Uch,” as Elliot and others suppose, which lies forty-five miles farther southwards? The author of the *Qhagh Námah*, who wrote in the time of Sultán Násir-ud-Dín, Kubá-jah, whose capital was Uchchh, was a native of that place; and if it had been anciently known as Askand or Asal Kandah, or whatever it may be, is it likely that he would have neglected to say so when writing of its former history? Mir Ma’súm of Bakhar writes the word, or rather it appears in three different MSS. of his work; as اسكند, اسكندري, and اسكندريه, and he distinctly states that this place, supposed to be “Uch” to support a theory, was anciently called *Talwárah*.

The people fought obstinately, but had, at last, to seek shelter within the walls; and they resisted for seven days all the attacks of the ‘Arab forces. The latter had now become distressed for provisions, when the nephew of the Multán chief, who had defended it so bravely, at the end of this time, under cover of the night, abandoned it, and threw himself into the fort of Sikah—سكه—which was a great fortification on the brink of the southern (left) bank of the Ráwí, the river, at that time flowing east of Multán and uniting with the Báh some twenty-eight miles to the southward of that place. See farther on. Finding themselves deserted by their governor, the inhabitants of Askand or Asal Kandah (or whatever may be the true reading), sent to tender their submission to the ‘Arab leader. The fighting men to the number of 4,000 were put to death, and their families were made slaves, but all others were spared.

Neither the *Mujmal-ut-Tawárikh*, nor the *Qhagh Námah*, mention Uchchh, which, probably, was not known by that name at the period in question, but both mention this Askand or Asal Kandah, or Usal Kandah, said to have been even then, an old fortification.

In one place (p. 366), Elliot is inclined to suppose that “the Satrapy of Askalanda contained the whole tract north-east of Alor, and south-east of the *Punjad and Ghara*; almost precisely the same, in short, as the present Dáúdputra country.” He is nearer the mark here, but it will be noticed that he seems to take for granted, that the rivers ran then as now. The position of the fortress of Askand or Asal Kandah is distinctly stated to have been on the north bank of the Báh, as it flowed in ancient times, and must have been within twenty-eight miles or less of Multán.

Cunningham supposes that “the old bed of the Ráwí and Sikah Multán”—the original is “Sikah-i-Multán,” that is Sikah of or belonging to Multán—“to be somewhat near Mâri Sital, which lies on the old banks of the Ráwí, two miles and a half east of Multán.” It is no proof, however, as he seems to think, that the Ráwí flowed under the walls of Multán, because Alexander, the Greek, is supposed to have circumnavigated the walls of some city supposed to be Multán. This he could have done, in the last century, if Multán is the place (only it could not have been according to the Greek writers), by the Lolí Wá-ban, and which then had to be crossed by a bridge; and it was some cutting, or branch from the *Qhín-áb* like this one, no doubt, which, as mentioned in the following note, Muhammad cut off or diverted, and caused the surrender of that stronghold.

<sup>193</sup> This cannot be the river of Basמיד referred to by ‘bn Hankaal at page 216, because that was two days’ journey or more below or south or south-east of Multán,

which they call a *táláb* [pure Persian word]. This was destroyed, after which, the defenders, overcome with thirst, surrendered the place. The fighting men were put to the sword, but the women and children, and the attendants of the *budh* or temple, to the number of 6,000 persons, were made captives."<sup>194</sup> This was in 95 H. (713-14 A. D.).

unless it refers to it as the river "which, below Multán and above Basmíd, united with the Mīhrán," and that was the Rūd-i-Sind wo Hind, the Bīáh and its tributaries.

<sup>194</sup> The *Qhachh Námah* here again differs from the Balázari, but we must not forget, that, at this period, the Ráwí and Bīáh, at this point, flowed nearly parallel to each other, and united near by. The author of the former says, that after Asal Kandah or 'Alah Kandah, etc., as it is here written, surrendered, Muḥammad crossed the Bīáh, and advanced to Sikah of Multán, which was a strongly fortified place on the south or left bank of the Ráwí. The Balázari is somewhat confused here, through confounding Sikah with Asal Kandah, and says it—*السيكة*—us-Sikah—is a town "on this side of the Bīáh, and now in ruins." As the author of the *Qhachh Námah* was a native of these parts, and the account of *Qhachh's* campaign in the very same places is perfectly clear, we may place dependence on his statements. After seventeen days of hard fighting, in which the 'Arabs lost twenty-five distinguished officers, and two hundred and fifteen other warriors, Bajhrá, a relative of the Multán chief, Dáhir's uncle's son, Kaursiyah, son of Qhandar, brother of *Qhachh*, who held it, passed over and entered Multán. This clearly shows, as indicated in the maps referred to, how the Ráwí then flowed, and the nearest point of which, at present, is thirty-four miles north-north-east of Multán. The 'Arabs followed the Hindús, severe fighting ensued, and continued with great obstinacy for about two months, by which time provisions became so scarce that "the head of an ass cost five hundred *dirams*." The 'Arabs had gained a footing near the walls, but no spot was found suitable for sinking a mine, until a person came out of the place by stealth and sued for quarter, which was given him. He pointed out a spot towards the north of the fort, on the banks of a canal or cutting [ *آب جوي* ], the same to which the Balázari refers. Elliot (page 205) supposes that "*this can hardly mean the main river.*" Hardly: it refers to a cutting or canal, similar to the Lolí Wá-han, which flowed in the same direction up to modern times, and traces of it still remain, or recently did, between the northern face of the fort and the 'Id-gáh, and in the time of the inundations contains water.

"A mine was dug, and in the course of two or three days the wall was brought down and the fort captured. "Six thousand soldiers were taken prisoners and put to death, and their families were taken as slaves. The rest of the inhabitants were spared."

The account of the finding of the treasure, as related in the *Qhachh Námah*, has been already related. See note 97, page 192.

After Muḥammad had settled the affairs of Multán, founded a Jámí' Masjid, and appointed Dá'ūd, bin Naṣr, bin Walíd, 'Ummání, governor of the place, he sent another, 'Abd-ul-Malik, Tammímí "to the fort of Bramah-yúr or Brahmah-púr, on the side of the Kb-i-Jihlam," which was called Sú-búr or Sú-púr (سوبور—in one copy سوربادر—Súr-badar. Not intended for Shor Kot, certainly, which was on the Qhin-áb); another to the territory around Multán, and another to the forts of Ijtahád and Karúr or Karáđ. All these names are more or less doubtful. Karúr is

The finding of the gold, from which this temple was afterwards known among the Musalmáns as "the *Farkh* of the *Bait*, or Receptacle or Chamber of Gold," has been related in another place.

"After this success, Muḥammad, son of Kásim, returned to Alor'or Aror and Baghrúr, and made presents to his soldiers."

After the removal of Muḥammad, son of Kásim, and his death, when Ḥabíb, son of Muḥallab was Amír of Sind, Jai Siṇha, son of Dáhir, had returned from Kash-núr to Bahman-ábád and established himself there, but Ḥabíb having advanced to the banks of the Mihrán, the people of Alrúr [الورور] *sic.* Ar-Rúr? or Ar-Ror? made their submission. In the mean time the Khalífah, Sulímán, son of 'Abd-ul-Malik, died, and 'Umar, son of 'Abd-ul-'Azíz, succeeded. He sent to the native chiefs of Sind inviting them to become Musalmáns, and several did so, including Jai Siṇha, son of Dáhir, and they received 'Arab names.

possibly meant for Kuhror. Then he is said to have sent a force of 10,000 horse against Kinnauj, which is constantly mentioned in connexion with Sind and Multán, and appears to have adjoined the latter territory on the east, and included part of the present Bikánir state. See pages 207, 208, and 223.

On reaching a place called Udh-fúr [ودھ فور] Odih-púr—the "Odipoor" of the maps, fourteen miles to the southwards of Uvánah on the Hukrá, one of the 'Arab officers was sent to the ruler of Kinnauj, who is styled Rá'e Har-Qhandar, Jhital; and at this same place, which Muḥammad had thus reached, in expectation of entering into hostilities with the Kinnauj ruler, and extending the Muḥammadan conquests in that quarter, the orders arrived from the Khalífah for him to be sewn up in a raw hide and sent to the 'Arab capital, which subject I need not enter into here; but, soon afterwards, great disorders appear to have arisen in these parts, and the Musalmáns lost ground considerably, and which they did not recover for sometime afterwards.

The Qhagh Námah says Muḥammad, son of Kásim, was preparing to make war on Rá'e Har-Qhandar, Jhital, of Kinnauj (not the city on the Kálí Nadi), the very day before his recall (on account of the false accusation of the daughters of Rá'e Dáhir, but Tod, in his "Annals of Méwar," whose historic knowledge was of a peculiar kind, actually makes him march to "Cheotore," as he spells Qhitor, but only to be overthrown by a Ráj-pút, as we might fully suppose. He says (vol. 1, p. 231): "In the ninety-fifth year of the Hegira—A. D. 713, *Mahomed Bin Kasim*, the general of the Caliph Walid, conquered Sinde. \* \* \* If any doubt existed that it was *Kasim* [sic] who advanced to Cheotore, and was defeated by Bappa, it was set at rest by finding at this time in Cheotore, '*Dahir*,' the Prince of '*Debeil*,' as he spells Debal, which Dáhir had been killed in battle more than two years before.

All this is not surprising when we consider who this "Bappa" was who defeated "*Kasim*," only it was Kásim's son who conquered Sind, after his father, Kásim, had been dead some years. According to Tod's "Annals," Bappa "*overcame all the kings of the west, Ispahan, Kandahar, Cashmire, Irak, Iran, Tooran, and Cafferistan*; all of whose daughters he married, and by whom he had one hundred and thirty sons, called *Nosheyrú Pathans*." This is quite sufficient.

Subsequently, Junaid, son of 'Abd-ur-Rahmán-al-Marri, was made Amír on the frontier territory of Sind, as the deputy of 'Umar, son of Hubairah-al-Fazá'ri [he, at this time, was Amír of Khurásán and the East], by the Khalifah, Al-Hishám, son of 'Abd-ul-Malik, who began to reign in 105 H. (724 A. D.). Junaid proceeded to Debal,<sup>195</sup> and advanced to the Mihrán; but Jai Sīḡha, [whose 'Arab name, however, the historian does not give] requested that he would not cross over, as he had become a Musalmán, and his territory had been confirmed to him by the ruling power. After receiving the tribute due, and giving and taking pledges, hostilities arose between them. Some say that Jai Sīḡha first took up arms; while others affirm that Junaid acted unjustly towards Jai Sīḡha, who assembled his forces, fitted out vessels, and got

<sup>195</sup> It is strange that neither the early 'Arabs, nor the travellers who followed, ever mention Damfilah, which, in after years, is constantly mentioned along with Debal or Dewal.

When Sulṭán Jalál-ud-Dín, Mang-barní, the Khwarázm Sháh, had to retire from the Panj-áb into Lár or Lower Sind, he, having gained possession of Siw-istán, as it is called by some historians, as well as Sharúsán, Sindústán, and Sadúsán, marched towards Debal and Damfilah. A Ilabagh [here the Sumraḡh chief of Debal is meant], who was ruler of that district or territory, fled, got on ship-board, and escaped. The Sulṭán detached part of his forces towards Nahar Wálah, from which they returned with immense booty. He founded likewise a Jámí' Masjid at Debal on the ruins of an idol temple. See "Ṭabaḡát-i-Násirí," note, page 294, and a note farther on.

Ibn Baḡṭāḡah went into Lár or Lower Sind before going to Dihlí. He says: "I then went by the Sind to the city of Láharí [Loharán], supposed by some to refer to Debal, but is a totally different place], which is situated on the shore of the sea of Hind, where the Sind unites with it [but the junction of the main channel of the river with the ocean was at some distance to the eastward of Debal]. It has a large harbour, into which vessels from Fárs, Yaman, and other parts come. At the distance of a few *míl* [miles] from this town, are the ruins of another, in which stones in the shape of human beings and beasts, in vast numbers, are to be found. The inhabitants of this place say, that, according to their chroniclers, there was formerly a city in this place, the people of which, for the most part, were so wicked, that the Almighty transformed every thing within it, the people, their beasts, even the seeds of plants, into stone." This was written in 734 H. (1333-34 A. D.)

This would seem to refer to the situation of Damfilah, but, as late as the reign of Sulṭán Muḡammad, son of Tughluḡ Sháh—744 H. (1343-44 A. D.), it is mentioned as lying in the route from Gondhal in Káthiáwár to Ṭaḡḡah, and in connection with the Sumraḡhs.

Ṭaḡḡí, the rebel, whom Sulṭán Muḡammad pursued from Guzarát into Sind, took refuge in Damfilah; and in reference to the boundaries of India, which Sulṭán 'Alá-ud-Din, Muḡammad, the second Sulṭán of the Khalj Turk dynasty, who succeeded to the throne of Dihlí in 695 H. (1295-96 A. D.), the different tracts which he was advised to bring under complete jurisdiction, that extending "from Multán to Damfilah" is referred to, but such a place as Ṭaḡḡah is not mentioned because it was not yet founded.



ready for war. Junaid moved against him in vessels likewise; and they fought a naval action in the estuary of *ush-Sharkí* [*nsh-Shágirá*—The then *Kohrá'í*<sup>196</sup> mouth, no doubt, by which that branch of the *Mihrán* of Sind which flowed past *Manšúriyah*, united with the ocean, but which estuary, in that day, existed much farther north], in which *Jai Siṇha* was defeated, his own vessel captured, and he was taken prisoner and put to death. \* \* \*

This Junaid, son of 'Abd-ur-Rahmán, was subsequently made Amír of *Khurísán*, which included all the eastern territories under the sway of the Musalmáns, and he greatly distinguished himself in *Farghánah*, between 111 H. and 116 H., (730–734 A. D.) when he died.

In after years, when *Hakam*, son of 'Awánah-al-Kalbí, succeeded *Tammím*, son of *Zaid-ul-Uṭbá*, the people of Sind had, for the most part, relapsed into idolatry; and the Musalmáns being without any place of security to which, in case of need, they might retire for safety, he built a town on the other side of the estuary in question, and made it the chief town, to which he gave the name of *Mahfúzah*—the Guarded or Preserved. Subsequently, 'Umaro, son of the unfortunate *Muḥammad*, son of *Kásim*, the conqueror of Sind, was made governor of *Mahfúzah*, and was greatly trusted by *Hakam*, and had been employed in many important affairs. He was sent from *Mahfúzah* on an expedition [but whither is not stated], in which he was successful, and was elevated to the rank of Amír. He founded another city on this side [the west] of the estuary, which he named *Manšúriyah*, in which the governor now [when the *Balázari* wrote] dwells."

Then came the time of the 'Abbásís [132 H.—750 A. D.], and *Abú-Muslim-al-Marwazí*, who was the chief instrument in setting up that dynasty of *Khalífahs*, despatched 'Abd-ur-Rahmán, son of *Abú-Muslim-al-Mughallisá-al-'Abdí*, to proceed into Sind to oust the 'Ummiyah officials therefrom. He came through *Tukháristán* from *Marw*, but he was encountered by *Manšúr*, son of *Jamhúr-al-Kalbí* [the same after whom the city and district of *Manšúriyah* were named according to *Ibn Khurdád-bih*<sup>197</sup>], his troops put to flight, and himself killed. *Abú-Muslim* then despatched *Músá*, son of *Ka'ab-ul-Tammímí* into Sind, who reached the banks of the *Mihrán*, which separated him from *Manšúr*, who thought himself secure as the river flowed between them; but *Músá* came upon him [in what manner is not stated], put *Manšúr* and his forces to flight, and slew *Mar'úr*, brother of *Manšúr*. The latter, in a sorry plight, fled to the sandy desert tracts, where he perished of thirst. *Músá* ruled in Sind for some time; and he repaired the city of *Manšúriyah*, and enlarged the *marj'í* there.

<sup>196</sup> See ante note 168, page 223.

<sup>197</sup> See ante page 195, and note 102.

He was succeeded by Highām,<sup>199</sup> son of 'Umaro-ut-Taghallubī,<sup>199</sup> who was sent into Sind by the Khalifah, Al-Manṣūr. He reduced many places which still held out against the 'Abbāsi authority, and among them was Multān, which, up to this period, still remained refractory. Ḳandā'il was also reduced. He proceeded to Kandhār [Kandhārah or Kandhāro] on vessels, and reduced it likewise.<sup>200</sup> \* \* \* Mūsū, son of

<sup>199</sup> Highām means, 'benevolent,' 'liberal,' but "Hashām" is meaningless.

<sup>199</sup> Called 'Umaro-ṣ-Ṣa'labī by others. He was sent to succeed 'Umar bin Ḥifz, whom the Khalifah, Al-Manṣūr, Abū-Ja'far, 'Abd-ullah, deposed in 141 H. (758-59 A. D.), for giving shelter to 'Abd-ullah, son of Ibrāhīm, son of the unfortunate Ḥasan, son of the Khalifah, 'Alī. 'Umar, son of Ḥifz, received him with great distinction and espoused his cause, as did also the other Musalmān officers in Sind; and they cast off their black 'Abbāsi garments, and adopted white ones, white being the colour of the Shi'ahs. At last, finding 'Abd-ullah was not safe in Sind, 'Umar sent him to a Rājah of Hind, between whom and 'Umar great friendship existed, so that he might not fall into the hands of his persecutor, the Khalifah. In consequence of 'Umar's conduct towards 'Abd-ullah, he was removed from Sind and sent to serve in Afrikah.

The Sayyids of Sind are said, on the authority of the Tārīkh-i-Alfi, to be descended from the above mentioned 'Abd-ullah, who was subsequently killed by a party of 'Arabs, who came upon him in a ghikār-gāh on the borders of Sind, leaving a son who was under the protection of the before-mentioned Rājah—of the neighbouring territory of Saurāshtrah, probably, and one of the Balabhi dynasty.

<sup>200</sup> It would be a physical impossibility to reach Ḳandahār in the present Afghān state by boats, unless they were boats attached to balloons, and just as practicable to reach Gandhārā on the upper Indus above Aṭak by the same means from Sind. The part meant here, lay near the banks of the Hakrā, and has been already referred to at page 207.

Because this word is written "Kandahar" by persons who did not know, apparently, the word in its original characters, and because a tract of country lying on the east bank of the Indus above Aṭak was anciently known as Gandhārā, and, in comparatively modern times, between the inroads of the Q̄kingiz Khān and Amir Tīmūr, the Gūrgān, the south-easternmost part of Zābul-istān of the ancient I-rānī empire became styled Ḳandahār, European writers, and English in particular, have managed to confound them (just as they have confounded Gajni and Ghaz-nih or Ghaz-ni), and some try to make them out to be all one. An example of this is to be found in the "Herodotus" of the Rev. Canon Rawlinson, page 175, in which "Beladhore," "Mass'oude," etc., are quoted, and we have "Sindhu Gandhara," the "Cabool Gandhara," and the "modern Candahar," the appellation alike of the province and of the capital," in one delightful jumble. The "Sindu" Kandhārah is written كَنْدَهَارَ (Sindī—کَنْدَهَارَ); that of Kāthiāwār كَنْدَهَارَ—Kandhār—or كَنْدَهَارَ—

Kandēhar in the original; the tract on the upper Indus كَنْدَهَارَ—Gandhārā; and the formerly Persian, and now Afghān province (anciently called Bāl-yūs or Wāl-yūs) and its chief town, كَنْدَهَارَ and كَنْدَهَارَ—Kandahār, and all are totally different. It is from similar theories that Hindū Lohānahs or Lohānos of Sind are turned

Yahyá, of the family of Barmak, was Amír of Sind in the time of the Khalífah, Al-Mámún [198–218 H.—813–833 A. D.], but he died in 221 H. (836 A. D.); and the Khalífah, Al-Mu'tasim B'illah, confirmed his son, 'Amrán, in the government of the province. \* \* \* He made war upon the Meds (مید) and slew 3,000 of them; and there [in their country] constructed a *band* or embankment, which is called Sikr<sup>201</sup>.ul-Mod, after which he encamped on the *Nahr* of Aror or Aro." Why this *band* was constructed is not mentioned. This affair happened, of course, near the sea coast of Kaoh<sup>202</sup>h, because 'Amrán caused a canal to be dug from the sea to the reservoir or tank of the Meds, and spoiled all their fresh water. This Aro or Ado or Aror refers to the place, the name of which is written اور, اور, اور, اور, and the like, by Bú-Rihán, and which I believe to be the "Addo" of the maps, the "Addooe" of Dr. J. Burnes, and, correctly, Adhoi,<sup>202</sup> by which, indeed, a *nahr* or small river runs, some sixty miles east of Bhuj. In the 'Arabic character this name would be اور, and in that character د, ر, and و, in manuscripts especially, if carelessly copied, are very liable to be written and mistaken one for the other. What satisfies me that the coast above referred to is meant is, that Muḥammad, son of Kásim, is said by the Balázari, to have entered into an accommodation with the people of Surast, with whom the men of بسید, باس, ماس, ناس, or سند<sup>203</sup> were then at war, who are Meds, sea-faring men and pirates. Of course Surast refers to Súraṭh, the Sauráṣṭrāṇ of the Hindús—the Káthiáwár peninsular lying nearest to Sind, and بسید or سند, etc., to the place which Elliot reads as "Báná," "Tána," "Bania," "Basia," and the like, which, as may be seen from the "Masálik wa Mamálik" map lies between Fáhmal and Maṣṣú-riyah.

This is all I find in the Balázari in which the rivers of these parts are anywhere mentioned.

I must now leave Sind<sup>204</sup> and return to the territory of the Panj-áb again.

into the descendants of the Afghán Núh (Noah). There are still other places also called "Kaughár." See ante note 105, page 196, and note 114, page 207.

<sup>201</sup> Sikr—سکر—in 'Arabic means an embankment, but not "*sakr*." The embankment may have been erected by the 'Arabs in order the better to approach the stronghold of the Meds.

<sup>202</sup> It is in the Morbí district of Káthiáwár, which comprises the sub-districts or dependencies of Morbí, Wágar, and Adhoi.

<sup>203</sup> See ante page 216, and note 145, and page 221, and note 163.

<sup>204</sup> I may mention that the Khalífah conferred the territory of Sind, as well as other parts, upon Ya'kúb, son of Laiz, the Šúffári, of Sigiz-stán, in 257 H. (870-71 A. D.); and that Sulṭán Maḥmúd, of Ghazni took Maṣṣúriyah in 417 H. (1026-27

In the extracts from Abū-Rihān given by Elliot, I notice events which are not mentioned by him, but by Rashīd-ud-Dīn, and are not contained in Bū-Rihān's text. It is the extract [at page 57] in which the latter is made to quote events which occurred in 692 H. (1293 A. D.), about two hundred and sixty years after that author completed his work.<sup>205</sup> From this we might suspect, that even some of the extracts which I have given here from Rashīd-ud-Dīn's work, which he appears to attribute to Bū-Rihān are his own, such for example as the mention of all the rivers of this part, with the *Biāh* north of the *Rāwī*, uniting with "the *Satlād* below *Multān*, at a place called *Panoh-Nad*," as already noticed in the extract from Bū-Rihān; but I shall presently show, that, for upwards of two centuries and more after the date above quoted [692 H.], the Shutlaj, that is the *Sutlaj*—if that is what he means by the *Nahr-i-Sutlad*<sup>206</sup>—did not unite with the other rivers of the *Panj-āb* at the place indicated.

The son of the Turk Sultān of *Dihlī*, Ghiyāṣ-ud-Dīn, Balban (the same who, under the title of Malik Ghiyāṣ-ud-Dīn, Balban, conducted the army under Sultān 'Alā-ud-Dīn, Mas'ūd Shāh, to the relief of Uchchh in 643 H.—1245 A. D.), Muḥammad by name, entitled Muḥammad Sultān, and subsequently styled the "Khān-i-Shahīd" or "Martyred Khān," on the death of Malik Sher Khān-i-Sunḡar, Balban's kinsman, who is said to have founded Bhaṭnīr<sup>207</sup>, or more probably

A. D.), which was the year of his expedition to *Somnāth*, when, on his return from thence he drove out the *Karāmīṭah* ruler thereof. See note 192, page 244.

<sup>205</sup> It is the statement, that "Multān and Uchchh are subject to *Dihlī*, and the son of the *Sultān* of *Dihlī* is governor." There were no *Sultāns* of *Dihlī* when Bū-Rihān wrote—428–430 H. (1020–1030 A. D.), and not for nearly two centuries after, the first being Kuṭb-ud-Dīn, *I-bak*, the Turk, in 605 H. (1208–9 A. D.); and there was never any *Sultān*'s son governor of these parts until the time of Muḥammad Sultān, the Khān-i-Shahīd, son of Sultān Ghiyāṣ-ud-Dīn, Balban, the *Ilbarī* Turk. Rashīd-ud-Dīn completed his work twelve years after the date given in the text above, namely, in 710 H. (1310 A. D.).

<sup>206</sup> See page 220. In the *MSS.* of the *A'in-i-Akbarī*, which I have examined, the name is written *Shutlaj*, but in *Blochmann*'s printed text it is "*Shattidur*—

شٹڈر." See the extract from *Muir*'s "*Sanskrit Texts*" in the account of that river farther on.

<sup>207</sup> Malik Nasrat-ud-Dīn, Sher Khān-i-Sunḡar, referred to in note 45, page 171, is said by Ziyā-ud-Dīn, Baranī, to have built a lofty cupola or domed building at Bhaṭnīr, and to have erected, among others, the fortresses of Bhaṭnīr and Bhaṭīndah. He held for a considerable time, off and on, the frontier provinces of the *Dihlī* empire on the west, or, rather, the provinces which still remained; for the traitor, Malik 'Izz-ud-Dīn Balban-i-Kashlū Khān, had betrayed *Multān* and Uchchh, and such part of *Sind* as he had held, by becoming a feudatory of the *Mughals*.

restored it, was placed by his father in charge of the western frontiers of the Dihlí kingdom, as it then existed; and the fiefs of Samánah, Debál-púr, and as much of the Láhor province as was in the possession of his father, were conferred upon him. Muḥammad Sultán used to send his troops to patrol as far west as the Bíáh, and to guard the frontier from the incursions of the Mughals, who held all the parts beyond or west of the Ráwí under subjection. From their domination Multán had only lately been recovered; and they carried their inroads into the parts between that city and Láhor, which was still in ruins, as far as, and even beyond, the banks of the Bíáh, which washed the walls of Debál-púr.

Muḥammad Sultán, subsequently, on an invasion of the Panj-áb territory by the Mughal infidels, under the Nú-in or Nú-yán, both being correct, Timúr,<sup>308</sup> in 684 H. (1285-86 A. D.), moved from Multán to encounter them. He fell in with them between Debál-púr and Láhor, and overthrew them; but he was afterwards killed by a body of the invaders which had rallied during the pursuit, and came upon him unexpectedly when almost alone, at a well, where he had alighted to refresh himself, and to say his prayers, and when he supposed they had all disappeared. On this account he is styled "the Khán-i-Shahíd" or "Martyred Khán." It was in this affair that Amír Khusráu, the Poet, was made captive by the Mughals.<sup>309</sup>

"Malik Shor Khán, was greatly trusted, and held in great respect and reverence; for he was as the Sudd-i-Yájúj Májúj [the Barrier of Gog and Magog] against the Mughals, whom he had repelled on several occasions. He brought under subjection to his authority the Jaṭs, Khokhars [not "*Gickers*" or "*Chukhars*"], Bhaṭis, Menáhs [Ma'ins?], and Mandáhrs, and other marauding tribes, which those who succeeded him were unable to control. Shor Khán died early in the reign of his kinsman, Sultán Ghiyás-ud-Dín, Balban, the Ilbarí Turk, and never used to come to Dihlí; and it is said, but, apparently, without good reason, that the Sultán caused poison to be administered to him." The author of the "Tárikh-i-Firúz-Sháh-í says he died at Bhaṭnir, where a fine tomb was erected over him.

For more respecting this great feudatory, see my "Translation of the Tabakát-i-Násiri," page 791.

<sup>308</sup> Called by some writers Timúr Aká, which is, doubtless, his correct name. Nú-in or Nú-yán merely indicates his rank.

<sup>309</sup> Another battle with the Mughal invaders took place in 691 H. (1292 A. D.) in the reign of the Khalj Turk Sultán, Jalál-ud-Dín, Firúz Sháh, on the confines of Bar-rám (بررام), with the river between; but I cannot discover whereabouts this place is, or was, situated. In the printed text of the A'in-i-Akbari (in which the names of places are often incorrect) the word is Bagráṁ; and lest it should be supposed to refer to Peṣ'háwar, the old name of which was Bagráṁ, I beg to state that that part is not referred to. This Bar-rám was in Hindústán, the Mughals having entered it; and Bagráṁ of Peṣ'háwar is not Hindústán.

Mír Ma'gúm of Bakhar, the historian of Sind, states, that in 693 H. (1293-4 A. D.), Sultán Jalál-ud-Dín, the Khalj Turk ruler of Dihlí, marched to Láhor, and despatched his middle son, Arkálí Khán, to assume the government of Uchchh and Multán; and Nuśrat Khán, another son, was made feudatory of Sind. Subsequently, Nuśrat Khán was placed in charge of the Multán, Uchchh, Bakhar, Siw-istán, and Thaṭṭah territories, with the town of Multán as the seat of government.

In 697 H. (1297-98 A. D.) Saldáe, the Mughal, invaded Sind, on which occasion Nuśrat Khán took his troops to Siw-istán (but not to Síwí) by water—this does not mean that Siw-istán, the modern Sihwán, was close to the banks of the Ab-i-Sind; for it was still a considerable distance from it—overcame the Mughals, and returned to Bakhar. There he found orders awaiting him to lead half his forces from Bakhar by way of Jasal-mír, in order to take part in the campaign against Gujarát, upon which service his brother, the Ulugh Khán, had been sent. From this it appears that there was no scarcity of water between Bakhar and Jasal-mír, and the Hakrá or Wahindah must have been still flowing, but whether in so large a volume as previously, we cannot say, as there is no distinct mention of it.

After these events, in the reign of Sultán 'Alá-ud-Dín, the Khalj Turk, Ghází Malik, afterwards Sultán Ghiyás-ud-Din, Tughluk Sháh, was sent to Debál-púr at the head of 10,000 horse to repel the Mughal inroads into that part of the Panj-áb territory.

In the *Tárikh-i-'Alá'í*, or *Khazáin-ul-Futúh* by Amír Khusrau, there is an account of Sultán 'Alá-ud-Dín, the Khalj Turk, who reigned from 695 H. to 710 H. (1296 to 1310 A. D.). In the first-mentioned year, Kadar, the Mughal [who is made a *Tátár* of in Elliot's "Historians"], invaded the tract of country called Járan-Manjúr,<sup>210</sup> having come from the Koh-i-Júd or Salt Range west of the Jihlam. The author says he crossed the *Bíáh*, Jilam, and *Sutlaj*, and burnt the villages of the *Khokhars*." The rivers are mentioned by him in the order in which they are here written.

'Abd-ullah-i-Waṣṣáf, in his history, completed in 728 H. (1327 A. D.), in the brief notice of the Sultáns of Dihlí, mentions the *Sutlaj*. He says with reference to the route between Khurásán and Hind: "After crossing the *panj-áb* or five rivers, namely, the Sind, the Jilam [Jihlam], the river of Loháwar, the *Satlút* [in the margin is *Sutlaj*],

<sup>210</sup> The name of this place is written in various ways—Jáwan Manjúr, Járan-Majúr, Jár-Manjhúr, and the like. In Elliot it is turned into "Jálandhar." See vol. 111, p. 162, note 2.

and the *Bīāh*," thus reversing their situations as is done in the previous extract, while the *Qhīn-āb* is not mentioned. He also mentions towns and districts, saying: "There are Baniān of Koh-i-Jūd [he is the only author that I know of who distinctly mentions where this tract lay<sup>211</sup>], Sūdarah [Sūqharah], Jālandhar, the territory of the Kokars [Khokhars], Multān, Ubohhar, Hāsī [Hānsī], Sur-Sutī, Kaīthal, Sunām, Tabarhindah," etc.

Previous to this, about 707 H. (1307-8 A. D.), Sultān *Ghiyās-ud-Dīn*, *Tughluq Shāh*, when he, as *Ghāzī* Malik, held the fiefs of Multān and Debāl-pūr,<sup>212</sup> then the capital of the northern Panj-āb, and Multān

<sup>211</sup> See "*Tabaqāt-i-Nāsiri*," page 677, note 5. Sūqharah is situated about four miles east-north-east of Wazīr-ābād, and styled "*Sohāurah*" in the maps. In former times the *Qhīn-āb* flowed close to it on the north, but is now nearly four miles from it. Sūqharah is an ancient site. In the last century, there used to be a lofty *mandir* of burnt brick standing there, on the bank of the *Qhīn-āb*.

<sup>212</sup> From the various operations and encounters between the rivals for the throne, before Sultān *Ghiyās-ud-Dīn*, *Tughluq Shāh*, succeeded to it, who, as *Ghāzī* Malik, held the fief of Debāl-pūr, there appears to have been no want of water between that place and Sarastī. He, on one occasion, came out of Debāl-pūr to meet his rivals coming from that part. "*Ghāzī* Malik, leaving Debāl-pūr, passed the *kaṣbah* of Dabhalī (دبھلی), and with the river (*āb*) in his rear, he encountered them." That river is not named, but the place here mentioned lies between Debāl-pūr and Sarastī or Sirsā, thirty-six miles to the westwards of Ubohhar, and stands on the bank of the oldest channel of the Sutlaj, called in the maps "the eastern "Naiwal" and "Nyewal." See the notice of the river Sutlaj farther on.

In the extracts given by Elliot in his "*Indian Historians*" vol. III, from a French version of Ibn Baṭūṭah, it is stated, that, in the reign of Sultān Muḥammad Shāh, son of Tughluq Shāh, "*Kishlū Khān* revolted against him, spread his money, raised troops, and sent emissaries among the Turks, Afghāns, and *Khurasānis*, who flocked to him in great numbers. His army was equal to the Sultān's, and even superior to it in numbers. The Sultān marched in person to fight him, and "they met two days' journey from Multān, in the desert plain of Abūhar. The "desert plain" here mentioned, refers to the sandy tract referred to in the next paragraph of the text above.

There seems to have been considerable disarrangement in the MSS. from which Lee's and other translations of Ibn Baṭūṭah have been made; for, in them he sets out from Multān and goes to Ubohhar, and, after going a journey of four days from thence, reaches Ajūdḡhan. The traveller's account, therefore, has been reversed. He first went to Ajūdḡhan from Multān, and, from the first-named place, in four days, reached Ubohhar. At Ajūdḡhan he visited, he says, "the famous Muḥammadan saint, whose tomb after his decease became a place of pilgrimage," and after a lapse of five centuries still continues to be held in great veneration—the *Shāikh-ul-Islām*, Farīd-ul-Ḥaqq wa ud-Dīn, *Shakar-Ganj*, son of Jalāl-ud-Dīn, Sūfīmān; and at whose tomb, Sultān Firāz Shāh, and Amir Timūr, offered up their prayers, as related farther on. It is from this Muḥammadan saint that Ajūdḡhan is also known as the *Pāk Patān*—The Holy Town—but not *Patān*, a Ferry, as some have assumed.

of the southern parts, used often to make incursions into the tracts held by the Mughals and their tributaries farther west. His son and successor, Sultán Muḥammad Sháh, when about to enter Lár or Lower Sind from Guzarát towards the close of 751 H. (about January, 1351 A. D.), in order to punish the Sumrahs of that part for sheltering rebels from his dominions, gave directions for boats to be collected from all parts, from Siw-istán [but not Siwí nor "Sebi"<sup>213</sup>], from Uchchh, Multán, and other parts, at Debál-púr, to enable him to convey his troops across the Sind river. To have directed boats to be collected at Debál-púr after the Biáh had deserted its old bed would have been simply ridiculous, since, by that desertion, it left Debál-púr some twenty-three miles farther west. From the above facts it is beyond a doubt, that, at that period also, the Biáh still flowed in its old bed, and no Sutlaj had united with it.

In 734 H. (1332 A. D.), the Moorish traveller, Ibn Baṭúṭah, crossed from Multán to Dihlí, about eighty years after the investment of Uchchh by the Mughals; twenty-eight years before Sultán Fírúz Sháh brought his first canal to Manṣúr-púr and Samánah; and sixty-seven years before the invasion of Amír Tímúr, the Gúrgán. Ibn Baṭúṭah proceeded by way of Ajúddhan and Uboh-har, and would have had to cross the Biáh as Amír Tímúr subsequently did, before reaching the former place, and the Sutlaj after leaving the latter, and soon after the different tributaries of the Hakrá higher up. He says, after noticing that Ajúddhan was a small place, "The first city we entered belonging to Hindústán<sup>214</sup> [here he is perfectly right, the river was the boundary between the Multán province and Hindústán] was Uboh-har,<sup>215</sup> which is the first place in Hind in this direction. It is small and closely built [it was a walled town with a fort], and *abounds with water and cultivation.* \* \* \* At length I left the town of Uboh-har, and proceeded for one day through a desert enclosed on both sides by hills [low, rocky hills],<sup>216</sup> upon which were infidels and rebellious Hindús. The inhabitants of Hind generally are infidels; some of them live under the protection of

<sup>213</sup> See a note farther on.

<sup>214</sup> The reason why he says this is that the Multán province extended, at the period in question, to the Sutlaj, which then flowed in the Uboh-har channel, and was still a tributary of the Hakrá or Wahindah.

<sup>215</sup> This name is written "Abohar," and "Abúhar," and the like in *MSS.*, but it was founded by Jaṇrú, grandson of Rájah Rasálú, the Bhaṭí, and named after his wife, Uboh, and therefore Uboh-har is the correct name. The termination, 'har' occurs in the names of many places where the Bhaṭí tribe dwell, or previously dwelt, and refers to standing water, or where water is found.

<sup>216</sup> These are the rocky hills lying immediately south of Tobgham, south of Hánsí, and the former place stands on the northern skirt of part of them.



the Muḥammadans, and reside either in villages or cities: others, however, infest the mountain tracts and rob on the highways. I happened to be one of a party of twenty-two persons, when a number of these Hindús [Bhaṭis probably], consisting of two horsemen and eighty foot, made an attack upon us. We, however, engaged them, and by God's help put them to flight, having killed one of the horsemen and twelve of the others. \* \* \* After four days' journey, I arrived at the town of Sarastī [Sirsá]. It is large, and abounds with rice, which they carry to Dihlí. After this I reached Hánsí, which is a very beautiful and closely built city, with extensive fortifications. I next came to Mas'ūd-ábád, after two days' travelling, and remained there three days." He adds, that, "The whole way between Multán and Dihlí, a distance of forty days' journey, there are many contiguous inhabited places." From these remarks, it will be noticed, that, with the exception of "one day's journey through a desert tract"<sup>217</sup> after leaving Uboh-har, there was no scarcity of water whatever.

Some of the events which happened in Sind and the Panj-áb and adjacent parts, during the time of the Khalj Turk or Khaljí dynasty, will tend to throw some light on the courses of the rivers of these parts, more particularly with respect to the Biah and Sutlaj.

Shams-i-Sarāj,<sup>218</sup> the 'Affī (abstainer from anything forbidden),

<sup>217</sup> This "desert tract" was that between the Uboh-har channel in which the Sutlaj then flowed, and the one farther east which it had last deserted. In all its changes it has invariably left the tract between its old and new channel covered with sand and silt.

<sup>218</sup> There is, of course, a "Gazetteer of the Hisar District, 1883-84. Compiled and published under the authority of the Punjab Government;" and in that "Gazetteer," as in most others, are some choice specimens of history burlesqued. The above writer is quoted therein as "one of Sir H. Elliot's Historians," under the name of Shams-i-Shiráz, the compiler apparently, having taken him for a native of Shiráz in Persia. It is a pity the Panj-áb Government has not some one to correct the historical part of its "Gazetteers."

For example: we are told time after time about "*the reign of the Emperor Ala-ud-dín Ghori.*" I beg leave to observe that no "Emperor Ala-ud-dín Ghori" ever yet reigned in the Panj-áb or Hind. The Sultán, Mu'izz-ud-Dín, Muḥammad, son of Sáṁ, the Shansabáni Táǵīk Ghúrf (who, in his youthful days, and before he became Sultán of Ghaznī and assumed that title, bore that of Shiháb-ud-Dín), who conquered Hindústán, and established the Muḥammadan faith at Dihlí, is not once referred to in the Gazetteer in question!

Here is one more specimen. Referring to the claim of a Jat tribe to Rájpút descent from "Máns, the grandson of Salvahan, Rája of Siálkot," the compiler says: "*As their story involves a war between Salvahan (A. D. 90) and the Muḥammadans of Mecca, it cannot be accepted with confidence.*"

I trow not, considering that the year 90 A. D., happens to be only five hundred and thirty-two years before the Muḥammadan era, and actually four hundred and seventy-three years before Muḥammad was born!

the author of the history of Sultān Fīrūz Shāh's reign, dwelt at Uboh-har, which, he says, is the country of that Sultān's Bhaṭī mother; for she was the daughter of Rānā Mal, the Bhaṭī. The great grandfather of Shams-i-Sarāj was the 'amal-dūr or revenue collector of the district dependent on Uboh-har—which shows that it could not have been short of water in his day, and as Ibn Batūṭah confirms—and Shams-i-Sarāj was intimate with Sultān Ghiyās-ud-Dīn, Tughluḳ Shāh, before he came to the Dihlī throne, when, as Ghāzī Malik, he held the fief of Debāl-pūr, of which, at that time, Uboh-har was a dependency. Shams-i-Sarāj states, that, at that period—previous to 720 H. (1320 A. D.)<sup>219</sup>—all the lands from the largest to the smallest estates, and all the *jāngal*, or waste lands, or uncultivated tracts, belonging to the Ma'in and Bhaṭī tribes, were dependent on the town of Uboh-har. He also states that in the language of this part *tal-wandī*<sup>220</sup> means a village.

When Sultān Fīrūz Shāh was about to return to Dihlī, after the death of Sultān Muḥammad Shāh, his kinsman,<sup>221</sup> whom he succeeded on his death on the banks of the Sind near Ṭaṭṭah, in Muḥarram, 752 H. (March, 1351 A. D.), he was advised to return through Guzarāt. As Aḥmad-i-Ayāz was in rebellion at Dihlī, he determined to do so by marching up the Ab-i-Sind river instead, with his still numerous forces and followers, and going by way of Multān and Debāl-pūr. This also shows that he did not anticipate any scarcity of water for his forces and the numerous followers and animals. First, he moved up to Sīw-istān,<sup>222</sup> the modern Sihwān, and from thence towards Bakhar, where he crossed the river, and then marched to Multān without having to cross any other river. Leaving it, he moved to Ajūdḡhan, and paid his devotions at the tomb of the Shāikh-ul-Islām, Farīd-ul-Haḳḳ wa ud-Dīn, Shākar-Ganj. From Ajūdḡhan he moved right across the worst part of what, in modern days, is known as the "Indian Desert," to Sarastī [now Sirsā]. Marching from thence he reached Ikdār and founded Fath-ābād,<sup>223</sup> so named

<sup>219</sup> Sultān Ghiyās-ud-Dīn, Tughluḳ Shāh, ascended the throne of Dihlī in 720 H.

<sup>220</sup> Villages in this part are also called *mandals* by some writers. This word, in Hindī, means 'a circle,' also a 'circular hut or tent.' *Mandals*, however, are not "fortifications," as Mr. Dowson, the Editor of Elliot's "Historians" supposed (Vol. III, page 254). The word is a common one in Hindī.

<sup>221</sup> Sultān Fīrūz Shāh was the son of Sultān Ghiyās-ud-Dīn, Tughluḳ's brother, and Sultān Muḥammad Shāh was the latter's son.

<sup>222</sup> See a note farther on.

<sup>223</sup> This place is now the principle town of one of the five *taḥsils* or revenue divisions into which the Hīzār district under the Panj-āb government is divided.

There is a "Report," published in 1875, of the "Settlement of the *Hissār* Division of the Panjab," the history of which, so called, is taken from the "*Āin-i-Akbar*" [sic], in which its compiler has the assurance to tell us, that, "Under Mu-

after his son, Fath Khán,<sup>224</sup> From thence he continued his march to Hānsī, having been joined by the feudatories of Samānah and Sunām with their respective contingents.

On his return from Lakhapawāṭī in 754 H. (1353 A. D.), he founded the Fīrūzah Hīṣār, on the site of which were two villages [*tal-wandīs*]; and there were fifty *kharaks* included in the first, and forty *kharaks* in the other. Those villages were called Barā (Great) Sarās, and Qlīṭā (Little) Sarās, respectively; and in this tract of country there are no villages containing other than these *kharaks* [the Hindī for a cattle-shed, but here seems to refer to the dwellings such as the Jāṭs of the Kharl and Sī-āl tribes construct—a flat roof of thatch or canes raised on poles but without sides or walls]. The Sultān was much pleased with the situation of Barā Sarās,<sup>225</sup> and he thought it would be advantageous to found a town there; for water was deficient there at that period, and, in the hot season, travellers had to pay as high as four *jītuls* for a *kūzah* of water. \* \* \* A fortress of considerable extent and loftiness was commenced; and in course of time [two years and a half] the place was completed, and the Sultān named it Hīṣār-i-Fīrūzah or the Fīrūzah Hīṣār or Fortress. It was surrounded with a ditch, and within the *hīṣār* a large and deep *hanḡ* or reservoir was constructed, which was intended to supply the ditch.”<sup>226</sup>

hammadan rule and prior to Fīroz Shāh's reign, *nothing worthy of note occurred*”! See note 239, page 274, for the confirmation or otherwise of this statement. Then it states, that, in 1372 he erected the fort, and founded the town of Hīssār, and had to cut a canal from the Jamna. \* \* \* Fīroz also built the Kasbah of Fattiābād, to which place, from the Ghaggar, he had a small canal cut, which is still in use.” In the same “Report” it is stated, that “Hīssār” is otherwise called “Habeli”—“Hīssār (*alias* Habeli).” This of course is a great error. *Hawelī* is not the *alias* of Hīṣār, any more than it is of Rowārī *bā ḥawelī*, Budā’ūn *bā ḥawelī*, Sīw-istān *bā ḥawelī*, and many other places. Hīṣār *bā ḥawelī* is as old as the K’in-i-Akbarī, wherein it will be found with many others. *Hawelī* is merely the Arabic for ‘habitation,’ ‘mansān,’ etc.—the Government building or public offices, appertaining to the chief town of a *Sarkār*. Hīṣār not “Hīssār,” of course means a fortress or fortified place.

<sup>224</sup> At the same time he founded three other small fortified places, which he named after his other sons, namely, Zafar-ābād, Rīzā-ābād, and Muḥammad-pūr. Villages still bearing those names, and marking the sites, lie, in succession, along the banks of the Ghug-ghar on the south side, north-east of Fath-ābād, but the places he founded have now disappeared.

<sup>225</sup> At each of those places there was, and still is, I believe, a stone column like the *lāṭh* of Fīrūz Shāh at Dihlī. They were of red sandstone, and were erected by his orders.

<sup>226</sup> The “Report” above referred to states, that, immediately under the building, a spiral staircase leads to a series of rooms, said to be connected under ground, with a similar building at Hānsī. A Jāmi’ Masjid, erected by Sultān Fīrūz Shāh,

The Sultān made great endeavours, according to the same writer, to supply the place and lands around with water. He succeeded in doing so by means of two canals—one from the river Jūn or Yamūnah, and one from the bed of the Sutlaj, and which was again connected with that river lower down. This is important, as showing that the Sutlaj must, at that period, have been running very much farther to the eastward than in later years, and much nearer to the Fīrūzah Hīṣār, and about mid-way (in the Uboh-har channel) between that place and the Bīáh, which we are certain still flowed in its old bed. These canals were the Rājīrah and Aghamānī. They were brought from the northward of Kaṛnāl, and flowed a distance of eighty *kuroh* to the Fīrūzah Hīṣār.<sup>227</sup> This is about the first time, if not the very first time, that the Sutlaj is mentioned in the Muḥammadan histories of India by a contemporary writer. After the new town and *hīṣār* were finished, and water supplied, this part was separated from the district of Sahrind, formed into a separate one, and named the district of Hīṣār-i-Fīrūzah, that is, of, or dependent on the Hīṣār of Fīrūz Shāh.

The Tārīkh-i-Alfī, written in the reign of Akbar Bādshāh, and compiled from the best histories then available in India, says, that "In the year 762 H. (1360-61 A. D.), the Sultān set out for a *nahr* or stream which is called Astīmāh, which really embraced two considerable streams, and contained never failing water, and between which a high *puṣhtah*—a spur or hill—intervened. The Sultān set 5,000 *belūḍars* or pioneers to work in order to remove this obstruction; so that the waters of the

still stands within the walls. The *lūṣh*, also erected by him, is still visible among "the mounds and broken bricks and tiles, which lie scattered profusely on the plain to the south of the modern city, and tombs and temples still remain standing to tell of by-gone splendour. These remains cover a wide area."

<sup>227</sup> Firīḡtah (the often quoted, because translated)—the original, I mean, not "Dow," nor "Briggs"—says: "In 762 H., Sultān Fīrūz Shāh heard, that near Haradwār, there was a hill [*puṣhtah* or *koh*] out of which water flowed towards the river Sutlaj, and that it was called Sursutī; that, on the other side of the hill was a rivulet [*jū'e*] called Salmāh; and, that, if this intervening hill were removed, the Sursutī would be able to flow and unite with the Salmāh rivulet, and their waters might be made to flow on to Sahrind, and Manṣūr-pūr, and from thence to Sunām, and would keep constantly flowing. The Sultān accordingly [after cutting a canal separating the Sahrind district from that of Samānah, and founding Fīrūz-ābād, a totally different place from the Fīrūzah Hīṣār, which is upwards of sixty miles to the east-south-east of Fīrūz-ābād], proceeded to carry this into effect."

Firīḡtah is merely a servile compiler; and, as every one knows who can read the originals from which he copied, copied others almost word for word. This may be judged of from the following note 230. The Tārīkh-i-Alfī supplies him with a deal of information, as well as the *Tabakāt-i-Akbarī*, especially regarding the events happening out of Hind; and he copies both almost word for word.

Sursutī might be brought to the *nahr* in question, and, when united, might flow on to Sahrind, Maṣūr-pūr, and Samānah."

'Abd-ul-Kādir, the Budd'ūnī, one of the authors of the *Tārīkh-i-Alfi* above mentioned, says in his history of India, that "the water is that which issues from a mound or hill of a sandy nature, of considerable size, and which water falls into the *nahr* or stream of the Sutlaj, which is also called the Suttladr," and that it—the water falling into the Sutlaj—is called the Sursutī;" that "it was distributed by means of two canals, and used to flow by Sahrind, Maṣūr-pūr, and Samānah. The whole of the mound or hill was not removed." It was, perhaps, merely cut through sufficiently to permit the water to pass freely.

"While employed in these excavations, the bones of elephants and human beings were discovered in this great mound or hill, among which were their arms [*dast*—the hand, including the arm to the elbow], measuring three *gaz* in length, some of which were petrified, but the rest still remained unchanged.<sup>223</sup> It was represented to the Sultān, that, when Sikandar [Alexander the Great] reached that place, the people, having made images of Nūshābah,<sup>224</sup> used to keep them in their dwellings and worship them; and that, now [in the time of Sultān Firūz Shāh], her image had become the deity worshipped by the people of these parts."

Sultān Firūz Shāh, likewise, when proceeding towards Debāl-pūr on a hunting excursion in 756 H. (1355 A. D.), "determined," it is said, "on opening a canal from the Suttladr (Sutlaj) to Jhajhar, a distance of forty-eight *kuroh*," or about eighty-four miles. Here there must be some error in the names, because the Sutlaj where it issues from the hills at Rūh-par, its nearest point to Jhajhar, is about one hundred and seventy miles, and the nearest of its old channels to the west—the easternmost "Nyowal N." of the maps, is one hundred and forty miles to the westward of Jhajhar. Consequently, if Jhajhar is correct, the Sutlaj cannot be meant, and if the Sutlaj is meant, then some other place than Jhajhar must be meant, to which it would have been far easier to have brought water from the Yamūnah.

<sup>223</sup> "Being therefore unresolved what course to take, he [Alexander] leaped from the tribunal, and shut himself up in his tent, forbidding any to be admitted, except those with him. Thus he sacrificed two days to his passion, and on the third he appeared publicly again, and ordered twelve altars to be erected of square stone, to remain as a monument of his expedition. He also caused the fortifications of his camp to be extended, and beds to be left of a larger size than the ordinary stature of man required, designing to impose upon posterity by this excessive outward appearance of things" "QUINTUS CURTIUS." More respecting these altars will be mentioned farther on.

<sup>224</sup> Nūshābah is the name of the ancient queen of Bards', in Shirwān, on the west bank of the river Kar.

In the following year he had another canal excavated from the Yamúnah or Jún near Sirmúr. He connected it with seven small rivers; and brought their waters to Hānsí [which canal still exists], and from thence to the Fírúzah Hīśár; and a great lake [or *ḡhand*, as it is called in those parts], close to the *kushk* or castle there, was filled therefrom. The same Sultán brought yet another canal from the river Ghag-ghar, and conducted the water into the *nahr-i-Khirah* [نهر كهره], and erected a fortress between, which he named Fírúzah-ábád, near which there also used to be a great *kol* [the Persian of *ḡhand*] or lake, several miles long, filled from the Ghag-ghar.<sup>230</sup>

His reasons for making all these canals are obvious. They are doubtless, connected in some way with the drying up, diversion of, or fluctuation in, some of the tributaries of the Hakrá or Wahindah; but

<sup>230</sup> The Budá'úní says—and the “Haft Iklim” agrees with his statement—that the Sultán went to Debál-púr in 756 H. (1355 A. D.), and caused a canal to be made from the Sutlej to Jhajhar, which is forty-eight *kuroh* distant. In 757 H. (1356 A. D.), he opened a canal from the territory of Mandú and Sirmúr, and connected seven other *nahrs* or streams with it, and conducted the waters to Hānsí, and thence to Rásín; and there the Fírúzah *hīśár* or fortress was founded. Beneath the *hagar* or palace or castle, a *hauz* or reservoir was constructed, and filled with water from the canal in question. Another canal was opened from the Kandar *Nahr* [نهر كندر], and brought under the walls of the *hīśár* or fortress of Sarastí, and from thence conducted to Bírí Kháráh [Khírah?]; and there a city [town] was founded which was named Fírúzah-ábád.”

In his extract from the *Tárikh-i-Mubárah-Sháh-í Elliot* says (Vol. IV., p. 8) that, “Firishta closely follows our author,” or, more correctly, *copies* from him. He adds “and helps us to understand him,” as we shall see. He continues: “There are several inaccuracies in the passage as given in Brigg’s translation, so the following is offered as a more correct rendering of the lithographed text. “In the month of Sha’ban, 756 H. (the Sultán) went towards Dībālpúr hunting, and having dug a large canal (jū’e) from the river Sutlej, he conducted it to Jhajhar, forty-eight *kos* distant. In 757 he cut a canal from the river Jamna, in the hills of Mandawí [Mandúp or Mandú is well known, the other is an error] and Sirmor, and having turned seven other streams into it, he brought it to Hānsí, and from thence to Abasín [Rásín?], where he built a strong fort which he called Hīśár Firozah. \* \* \* He formed another canal from the river Khagar [it is *Ghag-ghar* in the original], and conducting it by the fort of Sarsutí, he brought it to the river Sar-khatrah (نهر سر كهره), where he founded the city of Firozábád. He also brought another canal from the Jamna, and threw it into the tank of that city.” Then the Editor, apparently, adds: “The words “river of Sar-khatrah” are clearly wrong. In the translation, which was made from *MSS.*, the name is given as “Pery Khera,” which is more like *Hārī-khīr* of our text. The real name is possibly *Hārī-khīra*.” All this speculation is about the words mentioned above; and it will be seen how “closely Firishta follows our author.” It will be noticed that *نهر سر كهره* is an error for *نهر كهره* with ت not ي.

nothing whatever is mentioned, or even hinted at, on this subject, under the events of his reign, although we find, as related in detail farther on, that he followed the route from Debál-púr, Ajúddhan, and across to Fath-ábád and Hánís on more than one occasion, and which same route was followed by Amír Tímúr, the Gúrgán, some forty-three years after.<sup>331</sup>

Having arranged the affairs of his kingdom, in the year 763 H. (1361-62 A. D.), Sultán Fírúz Sháh turned his attention to Sind, the expedition against Thathah having had to be abandoned on the death of Sultán Muḥammad Sháh, his predecessor, on the banks of the Sind, in the vicinity of that town, about eleven years before. His forces on this occasion amounted to 90,000 cavalry, and 480 war elephants; and yet, strange to say, although it has been stated before, that water was scarce in the neighbourhood of his new town and fortress of Fírúzah in the hot season, he marched across that very part; because it is plainly stated by the historians of his reign, that he again went across to Ajúddhan, and offered up his prayers at the tomb of Shaiḡh Faríd-i-Shakar-Ganj, and that, after that, he reached "the confines of Bakhar and Siw-istán. Boats were collected from Debál-púr, and other places lower down, to the number of 5,000; and part of the troops, the baggage, and heavy equipments were embarked on them; while the Sultán, with the rest of his army, accompanied the fleet of boats, marching along near the river's bank. The father of Shams-i-Saráj, the author of the Tárikh-i-Fírúz-Sháh-í, had charge of one division of boats containing troops, on this occasion.

The Sultán was unsuccessful in his operations; for a disease broke out among the horses in lower Sind, and three-fourths of them died. The hot season being near at hand, he determined to retire into Guzarát, obtain reinforcements, and return as soon as the season opened, having first beaten off the forces of the Jám of Lower Sind, who had become so emboldened from the Sultán's losses, as to venture out and attack him.

<sup>331</sup> The author of another Tárikh-i-Fírúz-Sháh-í, Ziyá-ud-Dín, Baraní, states, that, on one occasion, when he, the author, "was within the fortress of Bhaṭnúr, in the cold season, some little disorder arose, and the people from the *tal-wanḡis* [villages] round about the neighbourhood came flocking in to the shelter of the fortress; and from the excess of dust raised by the horses and cattle, the broad light of day became so darkened therefrom, that people could not distinguish each others faces. Out of a thousandth part of the people and their animals, it was possible for *one part* to find a place within the walls. I entered the stable of the Hajjám, Jḡhtiyár-ud-Dín, Madhú, and counted therein thirteen horses of 1,000 and 2,000 *tangahs* each in value; and the rest of the other property who shall calculate." All this does not indicate any scarcity of water; for horses and other animals cannot exist without water any more than human beings.

The guides proved treacherous, and brought the Sultān into the Kūnchī *ran* or marsh<sup>232</sup> [the *ran* of Kachchh], and his whole army was on the point of perishing for want of water. The author says it was "such a howling desert that no bird ever flapped its wings over it; not a tree was to be seen; not a blade of grass; not even a miserable, noxious weed."

<sup>232</sup> This word is spelt *ran*, but never *riṇ*, because *riṇ* means 'battle,' while *ran* means 'a marsh' or 'marshy ground.'

The Tārīkh-i-Tāhīrī states, that this *ran* extended from the ocean between the countries of Sind and Guzarāt. Abū-l-Faḡl, in his *K'ūn-i-Akbarī* says, that "between Jhālāwārah [Jhālāwād] of the *Sarkār* of Ahmad-ābād, and the Pattan or City [i. e., Anhal-wārah], and Sūrāṭh [i. e., Saurāshṭrah] there is a great depression, in length ninety *kuroh*, and in breadth from eight to thirty *kuroh*. This they call *ran* (with short 'a' to 'r,' and the 'n' quiescent)."

When Sultān Maḥmūd-i-Sabuk-Tigīn returned from the expedition to Somnāth, towards Maṇṣūriyah, he was led by his Hindū guide into this *ran*, and on this occasion, according to the Baihaḳī, one of the Sultān's huntsmen killed an enormous serpent,—a python or boa-constrictor—which was skinned, and found to be thirty ells [gaz] in length, and four in breadth. The Baihaḳī adds, "Whoever doubts the correctness of this statement, let him go to the citadel of Ghaznīn, and see for himself the skin in question, which is hung up like a canopy." See note 105, page 196.

It is a wonder that Sultān Maḥmūd ever ventured to attack this hot-bed of idol-worship; and that he and his army escaped is more wonderful still, because, in a book published at Bombay and in London in 1882, entitled "Tarikh-i-Sorāṭh: A History of the Provinces of Sorāṭh and Hālār in Kāṭhiāwād, by Ranchodji Amarji, Divān of Junāgaḍh, and edited by Jas. Burgess, LL. D., F. R. G. S., etc., etc., etc.," who considers it "a genuine native history," and so it is in a Hindū point of view, we are told (p. 111) that, "The hateful Sultān Maḥmūd Ghaznavī marched with an army from Ghaznīn to Gujarāt with the intention of carrying on a religious war. In Samvrat 1078 (A. D. 1021, A. H. 414) he demolished the temple of Śrī Somnāth and returned. This act so provoked the Mahārāja Maṇḍalika, who was a protector of his own religion, that he marched with Bhim Deva, the Rāja of Gujarāt, in pursuit:

They ran like fawns and leaped like onagers,  
As lightning now, and now outvying wind!

*The Muḥammadans did not make a great stand, but fled; many of them were slain by Hindu scymitars and prostrated by Rājput war-clubs, and when the sun of the Rāja's fortune culminated Shāh Maḥmūd took to his heels in dismay and saved his life, but many of his followers, of both sexes [sic], were captured. Turkish, Afghān, and Moghal female prisoners were, if they happened to be virgins," etc., etc. So much for the "genuine native history."* It is strange the valiant Rājāh of the Hindūs did not make the Sultān "take to his heels" before he captured the place, and that he did not bring back the four fragments of their stone deity, instead of allowing the Mūsalmāns to carry them off to Ghaznīn, where a fragment was cast before the entrance of the great masjid and the Sultān's palace, respectively, to be trodden under foot (and where they might have been seen a little over a century since), and the others sent to Makkah and Madinah.



The season having come round, he returned from Guzarát with recruited forces, and reached the banks of the Sind; but, although he had boats, the breadth of the river was so great, and the opposition of the Sindis so determined, that it was found to be impracticable to cross it.<sup>233</sup> The author states that the Sulṭán was consequently under the necessity of sending a portion of his army up-stream, to cross at Bakhar, a distance of one hundred and twenty *kuroh*, then march down again on the other side, and attack Thaṭṭah.<sup>234</sup> When this force had appeared before Thaṭṭah, and fighting commenced, the breadth of the river was so great at this point, that, although the fortifications of Thaṭṭah were visible from that [the east] side, the land around could not be distinguished, and it could not be discovered whether his troops had been successful or not.<sup>235</sup> In this state of uncertainty, the Sulṭán sent a messenger across, with directions to the leader of the troops to march up-stream again, re-cross at Bakhar, and re-join his camp, he having determined to occupy his position on the east bank, and await the arrival of additional troops from Dihlí. At this juncture, the Sindis besought the Maḥdúm-i-Jaháníán, the Sayyid, Jalál-ud-Dín, Ḥusain, son of Aḥmad, Bukhárí, the saint of Uchḥ, who was in the Sulṭán's camp, to make overtures on their behalf; and the upshot was that an accommodation took place, the Jám and his brother came and made submis-

<sup>233</sup> Fearing that those first sent across would be annihilated before others could arrive to support them.

<sup>234</sup> The town or city of Thaṭṭah had only recently been founded by one of the early Sammah rulers, as mentioned farther on. The name of Thaṭṭah, as a city or fortified town, will not be found in any history written previous to the historian of Sulṭán Fírúz Sháh's reign—Ziyá-ud-Dín, Baraní.

<sup>235</sup> The Sulṭán could not have had any boats with him then, or perhaps they had been sent with the troops which marched upwards to Bakhar, otherwise, with a considerable part of his army on the Thaṭṭah side, he might surely have crossed with his army to their support, unless the Sindis with their vessels commanded the river, which is not improbable; for his troops had to march all the way back again by Bakhar to rejoin him. It will be noticed, that, when the Sulṭán returned after the accommodation with the Sindis, he came up the west bank of the river to Síwistán, the modern Sihwán, and from thence to Bakhar where he passed to the east side.

If we take into consideration the state of the river and delta near Thaṭṭah now, and, that although that place could be distinguished from the opposite side of the river, the land around could not, we can calculate how broad it must then have been, in the beginning of the cold season, too, after the inundation subsides. The river now, at the height of the inundations attains a breadth of about 1,600 yards—not quite a mile—and at its lowest is about 480 yards broad. A great part of the delta south of Thaṭṭah has been formed since these events happened.

sion, and the Sultán marched back to Dihlí by Síw-istán, Bakhar, Multán, and Debál-púr, crossing once more, what has been assumed to have been, at that time, a great, waterless desert, on his way to Dihlí.

If there then was such a scarcity of water, and all the rivers between Ajúddhan and the Fírúzah Hīšār had been dried up, he certainly would not have chosen that route on so many different occasions.<sup>236</sup>

Sultán Fírúz Sháh died in the ninth month of 790 H. (1388 A. D.). Sultán Násir-ud-Dín, Maḥmúd, his grandson, who succeeded his father, Sultán Muḥammad Sháh in 796 H. (1393-94 A. D.), despatched one of his Amírs, Sárang Khán, to Debál-púr, to gain possession of that fief and also Multán, and to put down Shaikhá, the Khokhar,<sup>237</sup> who was in rebellion. In the eighth month of that same year (796 H.), Sárang Khán proceeded to Debál-púr. \* \* \* In the eleventh month of the same year (just five years before Amír Tímúr appeared upon the same scene), Sárang Khán, having taken along with him Rú'o Dul-Chín, the Bhaṭí chief, (the same who surrendered Bhaṭnúr to Amír Tímúr), and Rá'e Dá'úd, and Kamál-ud-Dín, the Ma'in<sup>238</sup> chief, and the forces of Multán and Debál-púr, crossed the Suttladr (Sutlaj) near the town of Tihárah, and afterwards the Biah near Duhali or Dohali, and entered the territory of Láhor. Shaikhá, the Khokhar, hearing of these movements, having previously mustered his followers, took advantage of

<sup>236</sup> Shams-i-Sarāj (as well as others) states, that, "in the hot season, numbers of *gor khar* or wild asses congregate between Debál-púr and Sarastí," where Akbar Bádhsháh hunted them in after years, as he also did in the neighbourhood of Ajúddhan.

<sup>237</sup> See my "NOTES ON AFGHÁNISTÁN," etc., page 367 respecting these Khokhars, who are invariably made "*Gickers*," "*Gukkurs*," "*Ghakkars*," "*Gakkhurs*," and the like, by different English writers, unaware of the existence of the great tribe of Khokhar who are Jats, and of the Gakhars, a comparatively small tribe, being a totally distinct race. The Khokhars extend from the northern Panj-áb, where their chief places are Bharah and Khúsh-áb, down into Lár or Lower Sind, Kacchh, and even Káthiáwár. They cannot number at present less than 50,000 families, and are probably nearly double that number. Cunningham, who falls into the same error as others respecting them, says, "*Gakar*"—turning them into Gakhars—is most probably only a simple [!] variation of the ethnic title of *Sabar* or *Abári*, but the Khokhars are never even named by him! The Gakhars at this period were of no account whatever, being then a small and weak tribe, dwelling much farther west. They afterwards became somewhat stronger, and finally extended as far east as Gujarát (in the Panj-áb), the farthest point east ever reached by them. This was but for a short period, however, while they never extended farther south than the parallel of the Salt Range, about 32°-20' N. Lat., while the Khokhars overran nearly the whole of the remainder of what, in after times, was called the Panj-áb, east and south, and even contemplated the seizure of Dihlí and its territory. See also Amír Tímúr's encounter with them on the Biah near Multán at page 231.

<sup>238</sup> Also written Mahín.

them, and moved into the neighbourhood of Debál-púr, and invested Ajúddhan; but, on gaining intelligence that Sárang Khán had passed Hindú-pat, and had sat down before Láhor, he gave up the investment of Ajúddhan in the night, and made a forced march towards Láhor. Next day, the hostile forces having drawn near each other, came in contact at Sámú-talah, twelve *kuroh* from Láhor, in which Shaikhá was overthrown, and fled towards Jammú.

There is a very important passage contained in the Táríkh-i-Mubárah Sháh-i, of Yahyá, son of Ahmad, the Sahrindí, whose work embraces events up to the year 852 H. (1448 A. D.). After the departure of Amír Timúr from Hindústán, little was left to Sulţán Náşir-ud-Dín, Mahmúd Sháh. He says: "In 803 H. (1400-1 A. D.), Tághí Khán, the Turkehí Sulţání [that is, the Turkish *mamlúk* or slave of a former Sulţán], who was the son-in-law of Ghálib Khán, the Amír of Samánah, assembled a large force, and moved towards Debál-púr against Khizr Khán [afterwards ruler of Dihlí, who had been left by Amír Timúr in possession of the whole of the Multán province, and the territory dependent on Debál-púr, both of which tracts of country extended eastwards as far as the banks of the Hakrá or Wahindah]."<sup>239</sup> Khizr Khán,

<sup>239</sup> This fact, not generally known, or not well understood, has led some to assume that all this central tract, constituting the eastern parts of the Multán *şubah*, the western parts of the Dihlí *şubah*, i. e., the *sarkár* of Híşár Fírúzah, and the northern and western parts of the Ajmír *şubah*, was left out altogether by Abú-l-Fazl. Elliot in his "Memoirs on the Races of the N.-W. Provinces (Vol. II, p. 17)," says: "It will be observed, by referring to the map of Dastúrs, that the Western boundary of Sirkár Híşár Feroza has been extended only to the bed of the War river, which runs not far to the westward of the Ghaggar, the new Parganah of Watta and Bhattiání, being altogether excluded: for this tract, full of sandy plains and Thals, seems to have been little known in the time of Akbar, nor with the exception of Maland, which was in Multán, does it appear to be included in any Sirkár of the adjoining *Súbahs*. It is to be observed, that Abú'l Fazl, in mentioning the breadth and length of the several *Súbahs*, measures from Híşár in the Dehli *Súbah*, from Ferozpúr in the Multán *Súbah*, from the Satlaj in the Lahore *Súbah*, and from Bikanir in the Ajmír *Súbah*. He appears, therefore, with the above exception, to leave the tract between all these places as neutral ground."

All this is entirely erroneous: Abú-l-Fazl plainly says, and as the printed text will show, that the Dihlí *şubah* extends from Palwal to Lúdhíánah on the banks of the Satlaj, and from Híşár to Khizr-ábád; and among the *maḥáills* or districts of the Híşár *sarkár* are the districts of Bhatnir, Tihwánah, Híşár Fírúzah, Sírás, Fath-ábád, Anbáláh, Bhatindah, Sahrind, Sunám, Samánah, etc., in all twenty-seven districts.

Bhatnir and Bhatindah extended to the former channel of the Satlaj, which flowed past Uboh-har, and the Debál-púr *sarkár* of which Uboh-har on the bank of that channel was the frontier town, adjoined the Bhatindah district on the other bank. The Debál-púr *sarkár* included the *maḥáills* or districts of Fírúş-púr, and Muḥammad-ot (vul. "Mamdot"), which joined the *maḥáills* of the *sarkár* of Sahrind

who was at Debál-púr at the time, advanced into the *khittāh* or district of Ajúddhan to meet him; and a battle was fought between them on the 9th of Rajab of that year, near the banks of the Bahindah [ *بہندہ* ] or Wahindah [ *واہندہ*, 'b' and 'w' being interchangeable. In this word the *h*, in MSS. is liable to be mistaken for *z* and *j*, and *vice versa*], in which Tághí Khán was overthrown and fled to Uboh-har." Here we have one of the names of the Hakrá, but, most unfortunately, the writer did not think it necessary to say whether it contained water or not, but, from the manner in which he relates these events, it would appear that it did contain water, or he would have mentioned such an important matter. It is very certain that large bodies of troops could not have moved about in those parts so continually unless there had been sufficient water for them. It is also proved beyond a doubt, that, at this time, the Sutlaj<sup>240</sup> flowed between Uboh-har and Ajúddhan, about sixteen miles from the former, and nearly double that distance from the latter place; while we know, from subsequent events, that the Biah still flowed in its old bed.

Nearly five years after the events above related, in Muḥarram, 808 H. (July, 1405 A. D.), Ikbál Khán, brother of Sárang Khán, chief rival of Khizr Khán, in the struggle for power among the feudatories of the Tughluḳ dynasty, marched against Samánah, and afterwards moved towards Multán, and arrived at Tal-wandí. From thence he reached the banks of the Wahindah or Bahindah, in the direction of the *khittāh* of Ajúddhan (i. e., the district depending on it), and was encountered

in that direction. Indeed, Abú l-Faḳr says that the Láhor *shubāh* extended on the south to the frontier of Bikánír.

On the other hand, he describes the *shubāh* of Ajmír as extending to the *sarkárs* of Multán and Debál-púr of the Multán *shubāh*; and one of the *sarkárs* of Ajmír was that of Bikánír, consisting of eleven *maḥáls* or districts, of which Jasal-mír, Bikam-púr, Birsil-púr, Púgal, Bikánír, and others, adjoined the Debál-púr and Multán *sarkárs* in the other direction; consequently, every portion is filled up, and the so-called "neutral ground" is as unsubstantial and illusive as the *mirage* which prevails on the borders of these *shubāhs*. The error appears to have occurred through not knowing that both *sarkárs* of Debál-púr and Multán extended eastwards to the ancient bed of the Hakrá or Wahindah, and, farther north-east-wards, to the banks of the Sutlaj as it flowed in its old channel. As to its being so little known in the time of Akbar Bádsháh see *ante* note 236, page 273.

<sup>240</sup> This, its last deserted, independent channel, is now known as "the great *qanḍāh*." The author of the Survey I have been quoting in this paper, says, that, "The people of this part apply the term *qanḍāh* or *qanḍá* to the south or left bank of the Sutlaj. See the notice of that river farther on, but, I may observe that *qanḍāh* — *قنڈاہ* — is differently written from Wahindah — *واہندہ* — or Bahindah — *بہندہ* — referred to in the text above, and must not be confused the one for the other."

by Khizr Khán at the head of a considerable force, defeated, and put to flight; and, in the pursuit, Ikbál Khán was slain.

This was in the height of the hot season, it must be remembered, and that these two armies were operating against each other in the midst of what could not then have been a sandy, waterless desert, although much must have been uncultivated waste.

In the time of Sultán Mu'izz-ud-Dín, Mubárah Sháh, son of the Ráyat-i-'Alá, Khizr Khán,<sup>241</sup> who succeeded his father in 824 H. (1421 A. D.), Jasrath, the Khokhar, Shaikhá's son,<sup>242</sup> rebelled. Among some

<sup>241</sup> This was the title assumed by the Sayyid-zádah, Khizr Khán, who never took that of Sultán, as he acknowledged the supremacy of the Amír Tímúr, and after him, that of his son and successor, Sultán Sháh Rukh, Bahádúr Khán.

<sup>242</sup> In every translation of these events, Shaikhá, the father, has been mistaken for Jasrath, his son (just as we have in Elliot, for example, Vol. IV, page 54—"rebellion of Jasrath Shaikhá Khokhar"), precisely in the same way that Kásim, the father of the conqueror of Sind, has been mistaken for his son, Muḥammad, merely because the translators did not understand the proper use of the Persian *izáfat*, and that an *izáfat*, expressed or understood, was required between the names of Jasrath and Shaikhá, and between Muḥammad and Kásim, thus—Jasrath-i-Shaikhá, and Muḥammad-i-Kásim—after the idiom of the Persian, instead of writing Muḥammad bin Kásim, or Muḥammad ibn Kásim, according to the 'Arabic usage.

Scores of errors on this account occur in translations of the kind referred to, through want of knowledge of the use of the *izáfat* of the Persian grammar; for, considering the two names thus following each other like the Christian name and surname of Europeans, such, for example, as James Thomas, or Thomas James, and the like, the translators generally manage to drop the first and retain the second, as in the case of Muḥammad, whose father, Kásim, was in his grave long before his son set out for the conquest of Sind; and in the events above related, we have Shaikhá, who had been dead for some years, doing what his son, Jasrath performed.

In the same manner, we have Muḥammad-i-Sabuk-Tigín, written exactly in the same way in Persian MSS., but, as most writers appear to have been aware that Sabuk-Tigín was the father of Maḥmúd, the translators have seldom failed to add "son of," after Maḥmúd's name when it did not occur (except in the form of an *izáfat*, expressed or understood), in the original.

Such errors cannot be too much guarded against, when we find such scholars as Elliot, who must have known all this, falling into the same error, even after writing the names Muḥammad bin Kásim in his extracts from 'Arab authors; yet, when he comes to Persian and other non-'Arab writers, forgetting what he had written before, he constantly writes the two names as that of one person, and sometimes leaves out the first, the actual performer of the action, altogether, and makes the defunct father perform what his son had effected. It may not be amiss to give an example here. Elliot, Vol. I, page 432, has: "Muhammad Kásim, as he is universally styled by the Persians, but by Biláduri [the Balázari was an 'Arab author], "Muḥammad bin Kásim," and by Abú-l Fidá [another 'Arab or of 'Arab descent who wrote in 'Arabic], "Muhammad bin Al-Kásim;" but, at page 397, he actually writes the word "Md. Kásim," as one would write "Ed. Smith" for Richard

of his acts was the plundering of some of the *parganahs* around Láhör (the Budá'úní, and Firish<sup>ta</sup>h—who copies the *Tárikh-i-Mubárah Sháh-i* and other writers almost word for word—say, that he destroyed Láhör, which Sultán Ghiyás-ud-Dín, Balban, is said to have rebuilt, after its destruction by the Mughals in the preceding reign), after which he crossed the Biáh, and from it passed the Sutláz,<sup>243</sup> and plundered the *tal-wanqí* of Rá'e Kamál (Kamál-ud-Dín, previously mentioned), the Ma'in, or Mahín, as it is also written. After this he moved towards Lúdhíánah, and, after that, re-passed the Sutláz and invested Jálandhar. Sultán Maḥmúd Sháh had to move against the Khokhars in person; and in that same year he reached Lúdhíánah, although it was the height of the rainy season. The Sutláz was, however, so much swollen, and all the boats in Jasraṭh's hands, that the Sultán was unable to cross; and Jasraṭh, with his forces, was posted on the opposite bank. Matters went on in this wise for about forty days; and when the waters began to

Smith! At page 488 he quotes Elphinstone thus, showing Elphinstone's terrible mistake at the same time. He says: "Elphinstone observes that, '*Kásim's conquests were made over to his-successor,*'" etc., etc., and here again we have the *dead father* making conquests in Sind!

Lieut.-Colonel H. S. Jarrett, in his translation of "*A's Suyúfi's History of the Caliphs*," page 229, note \*\*, after writing, that "*Muḥammad-b-ul-Kásim* commanded the army in Sind," immediately under refers to Elphinstone's India, "where will be found a sketch of *Kásim's conquests*"—the dead father for the son again.

I could mention scores of other instances in Elliot's "*Historians*," and in the writings of many others. The famous blunder of turning Táǵíks, Turk slaves, Jaṭs, Sayyids, and others, into "PATÁN DYNASTIES," and their money into "PATÁN COINS," arose entirely through reading the names of the ancestors of the Shansabáni Táǵík Sultáns who ruled in Ghúr, namely, Muḥammad-i-Súrí, or Muḥammad bin Súrí—for the names appear in both ways on the same page—as that of *one man*, thus: "*Muḥammad Súrí*." On this, those who knew no better, at once jumped to the conclusion (since there was a Patán or Afghán Sultán of Dillí *some centuries after*, styled Sher Sháh, *Sor* or *Sorae*y, who belonged to the *Sorí* subdivision of the Lodí tribe, but whose progenitor *Sor* or *Sorae*y was *not born* at the period that Muḥammad, the Shansabáni Táǵík, and his father, Súrí, flourished), that this "*Muḥammad Súrí*" must be one and the same person, and at once turned all the Táǵík rulers of Ghúr into Afgháns likewise. See "*Ṭabaqát-i-Násirí*," Appendix B, page VII, and a note farther on.

The *Qhach* Námah contains scores of instances to prove the *izáfat*. All the headings have Rá'e Dáhir, bin *Qhach*, but when we come to the text we find Dáhir-i-*Qhach*; and Dharsiyah bin *Qhach* in the headings, and Dharsiyah-i-*Qhach* in the text. This occurs not only with respect to *Qhach* and his sons, but the names of others are written in a similar manner, just as Muḥammad bin Kásim and Muḥammad-i-Kásim.

<sup>243</sup> This is the way in which the name of the river is written in the *Ṭabaqát-i-Akbari*, and in other works of that period.

subside, the Sultán moved from Lúdhíánah to Kábul-púr, along the river's bank, followed by Jasraṭh, the Khokhar, on the opposite side. On the 11th of Shawwál, the tenth month, the Sultán managed to pass the Sutlaj, on which Jasraṭh retired to Jálandhar, and was finally pursued to the Chin-áb. The citadel and town of Láhor was then in ruins, but the Sultán had them repaired. This was in 825 H. (1422 A. D.).

At the time of these operations the usual ferry over the river Bíaḥ was at the *manṣa'* of Loh-Wál (لوه وال) or Lohi-wál (لوهي وال) a dependency of Haibat-púr Paṭi or Paṭi Haibat-púr,<sup>244</sup> but the Sutlaj flowed a considerable distance—some eight miles or more—farther south-east.

In this same reign, the fort of Multán, which had become greatly dilapidated through the attacks of the Mughals, was rebuilt from its foundations by Malik Maḥmúd, the feudatory of the district, son of the 'Imád-ul-Mulk, Malik Rajab.

We notice from the foregoing, that Debál-púr was a place of great importance for some centuries. Up to the time of Malik, afterwards Sultán, Bahlúl, the Lodí, the first Afghán or Paṭán who sat on the throne of Dihlí, we hear of his holding the fiefs of Debál-púr, Sunám, and the Fírúzaḥ Ḥiṣār. The first named place would have been useless to him without water; and there is no doubt whatever that the Bíaḥ, in his time, washed the walls of Debál-púr. It is certain, likewise, that it still did so up to the latter part of Akbar Bádaḡh's reign (and down to recent times, as I shall presently show), and, in which reign, Debál-púr still continued to be the chief place of that *sarkár* or division of the Multán *śubāḥ*, and Uboh-har was its frontier town on the east.

<sup>244</sup> This place is a little less than fifteen miles nearly due north from Dharam-Koṭ; fifteen miles and a half west of Nikúdar (the "Nukodar" of the maps, but named after the Mughal *máng* or *hazdrah* which once held it, called the Nikúdarí *hazdrah*), and six miles south of Haibat-púr of which Loh or Lohi Wál was a dependency. It is also just fifteen miles east of the Paṭan, Ghát, or Ferry of Harí ke, as the river ran in 1860. There happens to be a place about two miles west of Harí ke Paṭan of the present day, called Búh—Búh, or بوهر—Bú-púr, which appears in the maps as "Booh." During the operations against Jasraṭh, the Khokhar, there was a ferry at this place, which lies close to the old right or west bank of the Bíaḥ, but it was a ferry of the Bíaḥ only; for the Sutlaj and Bíaḥ had not then united even temporarily. This Búh or Bú-púr lies about fourteen miles west of the place where the junction of the two rivers took place in the last century, when they lost their respective names altogether, and the united streams became the Haríári, Maḡḡhú-wáh, or Níli, and, farther south, was known as the Ghallú Ghárah, or Ghárah.

As the first letter of بوهر, when written rather long, may, without a point, be mistaken for ل, as in لوه and لوهي, some have supposed that بوهر referred to لوه, and that the junction took place at this last named point, but such was not the case. See farther on.

When Pīr Muḥammad-i-Jahān-gīr, that is, Pīr Muḥammad, son of Mīrzā Jahān-gīr, son of Amīr Tīmūr, attacked the reinforcements from Multān sent to the relief of Uchēhh which he was investing, he fell upon them at Tamtamah (تتمه) or Tantanah (تنته) on the banks of the Bīāh. Many perished by the sword, and many threw themselves into the Bīāh, and were drowned, and but a remnant of the force sent from Multān under Tāj-ud-Dīn, Muḥammad, succeeded in reaching that place again.

I have compared three or four good copies of the Zafar Nāmah respecting Amīr Tīmūr's march from Bannú across the Indus to Multān and Dihlī, which lay through some of the very parts in which these vast changes in the courses of the rivers occurred, and the following is the result, omitting the operations by the way.

Leaving the banks of the Sind, so called in the Zafar Nāmah, and having crossed it at the same place where the Sultān, Jalāl-ud-Dīn, Mang-barnī, plunged in, Amīr Tīmūr marched to the river which, in that history, is called the Jamad—the Bihat or Jhilam, which flowed towards Uchēhh. Proceeding downwards along its banks, he reached the banks of the Qhin-āb, Qhadrā Bhāgā, or Qhin-āo, as it is also called, at, or near a fort, opposite to which the Jamad and Qhin-āo met,<sup>245</sup> and was astonished at beholding the waves, eddies, and whirlpools caused by the meeting of these two great rivers, or, as they are called in the history, seas. A bridge of boats had to be constructed; and, having passed over,<sup>246</sup> he marched downwards, and encamped on the river [the

<sup>245</sup> See a note farther on.

<sup>246</sup> The Malfūzāt says, that he halted that day and the next to enable the troops, materials, and baggage to cross.

In following Amīr Tīmūr's movements, the *former channels* of the rivers should be remembered; not traced according to their present courses. See the general map.

From whence these boats were obtained is not said, but, as Shihāb-ud-Dīn, Mubārak Shāh, the Tammīmī, Hākim of the "*jaztrah*," or *do-abah* or *bet*, or territory between two rivers—for the meaning of *jaztrah* is not an island only—after his night attack upon the Mughals, who had appeared before Bhārah, his capital (also written Bharah, the "Bherah" of the maps) and his defeat, endeavoured to escape from thence by dropping down the Jamad, Bihat, or Jihlam towards Uchēhh, with a fleet of two hundred boats or vessels, which he had collected, and most of which were captured before he had gone very far, it is probable that these captured boats, or a portion of them, furnished the means for constructing this bridge. By the time Shihāb-ud-Dīn, Mubārak Shāh, with the remainder, reached the vicinity of Multān, the Mughals were ready to receive him on both banks to prevent his passing down. He first threw his wife and children overboard, and then took to the water himself, most of his followers who could do so following his example, and escaped to the *jangals* along the banks. Every boat was captured or sunk, the fugitives were pursued into the *jangals*, and many were killed.



Ráwí] opposite Tulamí [i. e., Tulanbah], facing that town. He passed over with his forces, no bridge being mentioned, and pitched his camp in the plain near the fort of Tulamí."

From Amír Tímúr's own *Tuzúk* it also appears, that he crossed the united Bihat or Jihlum, which he calls the Jamad, and the Qhin-áo or Qhin-áb. He says: "There was a fort there, which was erected near the bank of these rivers [the point where the confluence then took place], and there I encamped, and amused myself in watching the force of the current, and the dashing and surging of the waters, where these two great rivers meet." Having crossed the river, he moved downwards towards Tulanbah, crossed the Ráwí, and moved nearer to that place, which, it is stated, "is thirty-five *kuroh* from Multán." It must be remembered, that, at this time, his grandson, the Mírzá, Pír Muḥammad, was in possession of Multán. The Amír then crossed what he calls "the Tulambí river," by which he refers, of course, to the Ráwí, and which, as I have before stated, then flowed more to the north of Tulanbah than at present. He subsequently moved towards the Bíáh as stated below.

The historian says, that no Bádsháh had ever before bridged the united rivers Jamad and Qhin-áo; for, that, although Taramshírín Khán had crossed the Qhin-áo, he did not succeed in throwing a bridge across it. This is the 'Alá-ud-Dín, Taramshírín Khán mention by Ibn Baṭúyah, who was then ruler of Bukhárá. He was the son of Dowá Khán, and brother of Kutlúgh Khwájah, of the family of the Qhingiz or Great Khán, who then ruled over Máwará-un-Nahr. Taramshírín Khán invaded India in 729 H. (1328-29 A. D.), having entered it through the territory dependant on Multán; carried his arms to within sight of Dihlí, the ruler thereof, at that time being absent in the Dakhan; passed through Guzerát and Sind; and finally re-crossed the Indus near Multán. What these parts suffered from this raid may be imagined.

The Malfúzá-i-Tímúri says, that he, Taramshírín Khán, used his utmost endeavours to construct a bridge of boats, but without success, and had to cross his army by means of boats. This was what the people of that part told Amír Tímúr.

The often-quoted "Ferishta" says (*in the original*) that Amír Tímúr "keeping along the banks of the river reached a place where the river of *Julandar* [sic. he did not copy his authorities correctly here] and the Bíáh join, and there *there were two strong fortresses called Tulmaní* (تلمني). He passed the river by a bridge of boats, and encamped in the Talmaní plain [*ṣaḥrā*]. After having destroyed Talmaní, he arrived at the *mauza*' of Sháh Nawáz on the bank of the Bíáh." Here it will be seen what a precious jumble he has made of matters. Again, in the extract from the *Tárikh-i-Mubárah Sháh-i* by the Editor of Elliot's "Historians" after he had written "Tulamba" and "Tulamí," a score of times, we have the following: "Intelligence came that Amír Tímúr, King of Khurásán, had attacked Talína, and was staying at Multán." To this "Talua" is a note, saying, "This name is also given in the *Tabakát-i Akbari*, and in *Badáúní*." It never strikes him that "Tulanba" is the place, or that he had previously referred to it.

Amír Tímúr having gained possession of Tulanbah, together with its *ḥiṣār* or fortress,<sup>247</sup> moved from thence, and the next day encamped near a great *chál*, *kol-i-áb*, or lake, near the banks of the Biah, and near the *mauza* of Sháh Nawáz, on or close to which *chál*, the Khokhar chief, Nuṣrat [brother of Shaikhá, previously mentioned] had fortified himself.

This *chál* or lake, so styled, appears to have been what is called in the Panj-áb and Sind, a *ghanḍ*. There is one still thereabouts, close to the old bed of the Biah, about thirty miles south-east of Multán, but, at the period of Amír Tímúr's invasion, it appears to have extended much farther towards the north-east than at present, and was of great extent and considerable depth.<sup>248</sup> Amír Tímúr was in these parts just at the beginning of the year 801 H. (The year began 12th September, 1398 A. D.); for he crossed the Qhin-áb on the 2nd of October of that year (1398 A. D.). All the rivers of this part are at their full in August in the present day; and the above shows what changes have taken place. One would scarcely attempt to bridge the united Jihlam and Qhin-áb

<sup>247</sup> The town and fortress was surrendered on the 1st of Šafar, 801 II., without any opposition whatever. There was, in fact, no one able to oppose him.

Cunningham, in his "Ancient Geography of India," says (p. 224), that Tulamba must have had a remarkably strong fortress, "as Timur left it untouched, because its siege would have delayed his progress," and Briggs's 'Forishta' is quoted. On the next page he says, "The old town was plundered and burnt by Timur, and its inhabitants massacred, but the fortress escaped his fury, partly owing to its own strength and partly to the invader's impatience," etc., etc.

The Malfúzá-i-Tímúri says, that the chief people of Tulanbah presented themselves in the Amír's camp before he reached that town, and that the sum of two lakhs of *rúpiés* had been fixed as an indemnity for sparing the place; and Sayyids and 'Ulamá were exempted from payment. There was no opposition whatever. Provisions being exceedingly scarce, Amír Tímúr wished the people to pay the ransom in corn instead of money, but they refused to do so; and a large body of fresh troops having arrived in the mean time, but, unaware that terms had been concluded, and being distressed for want of food, entered the place and began to help themselves. As soon as intimation was brought to Tímúr of these doings, he says: "I gave orders to the *Tuwághís* and *Sazáwals* to expel those troops from the town, and commanded that whatever corn they had plundered or property seized, should be taken as an equivalent for so much of the ransom." I think most troops would have acted in just the same manner. No people were massacred, nor was the place burnt, but some of the refractory inhabitants of the parts around, who, after first submitting of their own accord to his grandson, Pír Muḥammad the previous year, on his march to Multán, and had acted in a rebellious manner after, and massacred some of his men, were punished. A detachment was sent against them, and they were harried, the men killed, and their families and cattle were brought in, and were distributed among the soldiery. Most European generals and their troops would have acted in much the same fashion and punished the "rebels," I expect, in the fourteenth century, as well as in the nineteenth.

<sup>248</sup> See note 192, page 244.

near the point of junction in September even now, or attempt to cross the Ráwí with a large army at such a season by fording in that month. The rainy season, too (and now there is no rainy season hereabouts; the monsoon does not extend its influence so far west; and what may have been the climatic changes since Alexander's time?), just preceding Tímúr's arrival, had been very severe; and it was through its severity that the forces of his grandson, Pír Muḥammad, then in possession of Multán, had lost so many horses, that, when he presented himself in his grandfather's camp at Jinjan on the banks of the Biah, his men were mostly mounted on bullocks, and the rest on foot.

Round about this *chál*, *ḡhand*, or lake were bogs and swamps; and these rendered the stronghold of the Khokhar chief very difficult to approach. The *mauẓ* of Sháh Nawáz is described, at that period, as a very large village, but I fail to find any traces of it now,<sup>249</sup> but the *chál*, *ḡhand*, or lake, as previously observed, still exists or what remains of it, in the old bed of the Biah, six miles and a half north-north-east of Tibbah, in Lat. 30° 3' N. and Long. 71° 45' E. Up to this point it will be observed, Amír Tímúr kept along or near the right or north bank of the Biah.<sup>250</sup> Some of his nobles and their men had crossed the Biah in

<sup>249</sup> It was still known, apparently, in the last century, when the Sayyid, Ghulám Muḥammad, who proceeded from Hindústán to Kábul on two or three occasions, with despatches from Governor Hastings, to Tímúr Sháh, Bádsháh of Kábul, reached that part. The Sayyid crossed over on one occasion from Uboh-har to Baháwal-púr, and thence to Multán. Setting out from that city to proceed to the Derah of 'Ismá'il Khán, he says: "My first stage from Multán was five *kuroh* in the direction of N. W. to *Khan Chál*; the second stage was ten *kuroh* in the same direction to the *Dih-i-Sháh Nawáz*, on the banks of the Biah; the third stage was ten *kuroh* N. to Sháh-púr; and the fourth another ten *kuroh* N. W. to Tulanbah." This journey was undertaken in H. 1201, which commenced on the 13th of November, 1796, only a few months previous to the time the Sutlej is said to have "suddenly changed its course." Neither *Khan Chál*, the *Dih* of Sháh Nawáz, nor Sháh-púr are now to be found. When the Sutlej changed its course, the Biah also deserted its old bed, and both rivers uniting, lost their respective names, and became the Haríári and Nílí, upwards, and Ghárah lower down, as previously mentioned.

<sup>250</sup> During the revolt of the Mírzá's in Akbar Bádsháh's reign, in the year 980 H. (1572-73 A. D.), news was received at Láhor, that Ibráhím Husáin Mírzá, accompanied by his youngest brother, Mas'úd Mírzá, having been defeated at Nág-awr (*vul.* Nagore) by the Bádsháh, was making his way across to the Panjáb territory; that he had crossed the Sutlej, and was advancing towards Debál-púr, and plundering the country. The Khán-i-Jahán, Husáin Kulí Beg, the Turk-mán, the feudatory of the *Sabah* of Láhor, with the forces of his province, at once moved against him, and came suddenly upon his camp—he had only about 400 followers along with him—in sight of Tulanbah, just as Ibráhím Husáin Mírzá was returning from hunting (Blochmann, in his printed text of the Akbar Námah, in which names, of places are often incorrect, has "*Paltah*" ( *پلتھ* ) instead of Tulanbah ( *تulanbah* ). A fight ensued, in

pursuit of the Khokhar chief; and the Amír followed, with the rest of the army, to the river's banks, opposite to a place called *جَنجَن*—Jinján [or *خَنجَان*—Khanjáun and *خَنجَن*—Khanjan, in two other copies of the MS. forty *kurōh*<sup>251</sup> distant from Multán, where the whole of the forces had congregated. He directed that they should commence crossing the same day. This was the 13th of the month Šafar. On the 15th (26th October, 1398), Amír Tímúr crossed the Báh, and his camp was pitched

which his followers were overcome and dispersed, and his brother, Mas'úd Mírzá, was captured. Ibráhím Husain Mírzá now sought to re-pass the river Báh, as he feared an attack from Multán, Husain Kulí Beg having intimated to Sa'id Khán, the feudatory of Multán, that the Mírzá had entered his province. As the Mírzá had only a few followers with him, and night had set in, and no boat was procurable, he rested on the river's bank until day should appear. A party of fishermen, styled *jhāls*, and some Balúchís dwelling in that part of the Multán province, fell upon the fugitives in the night, and dangerously wounded the Mírzá in the throat with an arrow, a volley of which they had discharged among the party. He was captured, and taken away to Multán to Sa'id Khán.

The Tabaqát-i-Akbari states, that he halted for the night "in order to cross the Ghárah, which is the name of the river formed by the junction of the Sutlaj with the Báh.

Another writer relates this affair somewhat differently, and states, that Ibráhím Husain Mírzá halted on the banks of the Báh and the Sutlaj (that is, where the rivers then met again, in the Multán district, after having separated, as subsequently described); that he was set upon and wounded by a low class of Multán peasants styled *jhāls*, and that he took refuge in the dwelling of a *darwesh*, Shaiikh Zakariyá by name, who sent information of his whereabouts to Sa'id Khán at Multán. This agrees with Abú-l-Faẓl.

Faizí, the Sahrindí, says, that the Mírzá wanted to cross where the Báh and Sutlaj unite and are known as *Ab-i-Gháraḥ*; while the Akbar Námah states, that Ibráhím Husain Mírzá was crossing the Sutlaj at Gháraḥ (see farther on. Ghállú-Gháraḥ was then a *maḥáll* of the Multán *sarkár*), where the Báh unites with the Sutlaj, when he was taken prisoner by the fishermen and peasantry.

All this clearly shows that the Báh still flowed in its old bed, but that the Sutlaj had re-united with the Báh some miles to the south-west of the *ghál*, or *qhaṇḍ*, or lake near Sháh Nawáz, mentioned in the account of Amír Tímúr's movements, one hundred and eighty years before.

<sup>251</sup> Not "four *kos*"—eight miles—as in Elliot, but *forty*, as above. The "*Zafar Námah*," referring to this *ghál-i-áb*, on the banks of which the Khokhar chief had fortified himself, says, that, "this sheet of water was of great expanse, like unto the mind of the pure in spirit, deep, and as the area of the inclination of the most beneficent, broad." The Editor of "Elliot's Historians," in his version of the *Zafar Námah*, contained in that work, turns this part into "*rúd-khána-i-azím*, and, translates it "a strong river fortress!" The original is: *وَأَنْ أَيْسَتْ عَظِيم* and there is not a word about any "*rúd-khána*," or "river fortress."

P. de la Croix, in his "History of Timur-Beg," surrounds this vast lake with a wall, behind which "Nusret Coukeri retired with 2000 men," and others copy this nonsense.

near the *karyah* of Jinjan, where he halted for four days and nights.<sup>255</sup> "In the mean time," he says, "in the course of two or three days, the whole army, some by means of boats, and some by swimming [their horses], effected the passage of that rolling river without a single accident."

There is no remark made, either by Amír Tímúr himself or by the historian, as to any difficulty in crossing the Ráwí, but here there was some difficulty experienced. Further, we find the Bíáh still flowing in its old bed, and that it was a "rolling river," and "*was not fordable*." This fact is conclusive; and I shall presently show, that no Ghárah, Ghárá, or Hariári<sup>256</sup> (miscalled Sutlaj, so low down, by English writers) flowed in this neighbourhood at this time, and that such names were unknown in these immediate parts, at the period here referred to.

Leaving Jinján, Amír Tímúr marched one stage to the *karyah* of سیوال—Sihwál, or Sihwal—سہول; and on the 21st from thence made another stage to اسوان—Aṣwán or Aṣúán, where he remained one day. Next day, leaving it, he made another stage to جہول—Jhawál or جہول—Jhawal.<sup>257</sup> The people of Debál-púr, when the Mírzá, Pír Muḥammad, arrived in those parts, had submitted to him, and had been well treated; but, when they found that, through the mortality among his horses, he had been obliged to leave his camp outside, and retire within the walls of Multán, they, like others in the neighbourhood of that place, rose, and in combination with the Ghuláms of Sultán Fírúz Sháh, Musáfir,

<sup>255</sup> Tímúr's "Malfúzá't" says, respecting his camp at Janjan: "I directed that the whole army, with the war materials and baggage, should cross the river (Bíáh) to Janjan, and that my pavilion should be erected on a small *puṣṭah* (eminence) just outside the place, at the foot of which there was a pleasant garden. When this had been done, I crossed the river, after which I ascended the little eminence, and from it a verdant plain lay stretched out before me."

<sup>256</sup> Also written Harihári.

<sup>257</sup> The names of these places vary a little in different MSS., and in different works. Some have *Khinján* instead of Jinján, 'kh' and 'j' being often changed through the displacement of a point over or under, others *Ṣahán*, and even *Sahák*. The second name does not vary so much, and is written *Sihwal* or *Sihwál*. The third, likewise, does not vary much, being *Aṣwán* in most MSS., and *Aṣwál* in one or two. The last is written *Jhawál*, *Jhawal*, and *Jawál*. The first reading given in the text above is the most trustworthy; but I fail to trace any of these four places.

Bennell, in his "Mémoir on the map of Hindoostan," has *Jenjian*, *Schonai*, *Asonan*, and *Jehaul* respectively (from P. de la Croix's "History of Timur-Bec"), but, since his map was constructed, vast changes have taken place through the alterations in the courses of rivers, especially those of the Ráwí and Bíáh; and these places happened to lie in the very tracks of these vast changes, which altered the whole face of the country, and places which before were in one *do-ábah* were transferred to another. See note 272, page 293.

the Kábulī, who had been sent to Debál-púr as Dárogah, with 1,000 troops, were all massacred by them. On the approach of Amír Tímúr to the aid of his grandson, they abandoned the place with all their belongings, and went off to the *hīṣār* of Bhaṭnír.

When Amír Tímúr reached Jhawál or Jhawal he gave orders for the main body of his forces to move by way of Debál-púr, in order that, in the vicinity of Dihlí, at the *mauza* of Samánah, he would re-join it. Then, taking a body of 10,000 cavalry along with him, he turned off towards Ajúdhan; and making a forced march, and going on all night, on the morning of the 24th, at sunrise, reached that place. Many of the principal people of this town had also gone off to Bhaṭnír, and none remained but a few Sayyids and 'Ulamá, who came forth to receive him. They were well treated, and a Dárogah was left with them that they might not be molested by any other troops passing that way. On the morning of the 25th, after offering up prayers and paying his devotions within the domed building where is the tomb and shrine of the *Shnikh*, Farid-i-Shakar-Ganj, he set out towards Bhaṭnír. Passing رید [Rí-dúnah or Rawdúnah],<sup>254</sup> and proceeding ten *kuroh*, he reached Khális

<sup>254</sup> In the *Malfúẓāt-i-Tímúrí*, in "Elliot's Historians," it is said [p. 421], that, "passing by Rádanah, I halted at Khális Kotalí;" but, in the extract from the *Tímúr-Námah* in the same work, the same word or rather letters رید, are translated: "From thence he started for Bhaṭnír, and crossing the river, he arrived at Khális-kotalí." This is improved upon in a note to the word 'river,' which is exceedingly amusing to read by one who knows the parts in question. See Vol. III, p. 488 of the above work. If water is here referred to, which I do not think it is, رید would be the plural of ری—river.

Referring to the confluence of the "Biáh and Satlej," in his "Ancient Geography of India," Cunningham, quoting "Abul Fazl," says:—"For the distance of 12 *kos* near Firuzpur the rivers Biáh and Satlej unite, and these again, as they pass on, divide into four streams, the *Hár*, *Haré*, *Dand*, and *Núrni*," but this turns out to be "Gladwin's translation of the *Ayin Akbari*." The *K'ín-i-Akbarí* contains nothing of this sort. It says (see also Blochmann's text, page 549): "For about twelve *kuroh* above Firúz-púr, the Biáh and Satlaj unite, and after that receive [that is the two united] the names—*Harihári*, *Dand*, and *Núrni*," and near Multán unite with the other four [rivers of the Panj-áb, before mentioned];" but, in a footnote, Blochmann, who had no local knowledge, divides the word *Harihári*, which is so well known, into *Har* and *Hári*, as though two words, which it is not. This Gladwin also seems to have done, but there is not a word of "these again, as they pass on divide into four streams:" this is all Gladwin's own *if*, in his translation. It is a great pity that translators when they do not understand a passage, should add words of their own, because it misleads: better to merely give a literal translation, and say they do not clearly understand it. An example of this pernicious system is given in note 255, below.

Abú-l-Fazl, as it happens, says, that, "between the Biáh and the Satlaj is a distance of fifty *kuroh*." See also page 296.

Koṭlah where he halted. This place is fifty *kuroh* [one copy says fifty-three] from Bhaṭnir; and three *kuroh* is a standard *farsakh*. At the fort of *Khālīṣ* Koṭlah Amīr Tīmūr remained until the time of afternoon prayer, then pushed on for the remainder of that day and the whole night, and halted not until he had crossed the *chāl* or desert tract in one stage. When morning approached, his advanced guard surprised the patrol from the side of Bhaṭnir; and, at breakfast time, Amīr Tīmūr appeared before it.

The historian says, "the fortress of Bhaṭnir is a very strong place, and one of the most notable of Hindústán, much out of the high road, and lying away on the right hand. Round about it is *chāl* (waste)<sup>265</sup>;

The word as it appears in the different MSS. of the *Zafar-Námah* available—and I have used five copies—are as in the text above, with the exception of one copy which has *رودنه*, with a *و* inserted over, showing, that, in copying the MSS., a letter had been left out. If we suppose that these letters form two words, and that they might form *رود - i - دنه*, or even that the latter might be *دنه*, with 'd' instead of 'w'; still, that water or a river is not referred to, is evident from the fact, that, throughout the *Zafar-Námah*, when the crossing of a river or water is referred to, the verb used is *عبر کردن*, 'to cross from one side to another,' while here we have *گذشتن*, 'to pass by,' etc. Moreover, when rivers are referred to, they are called *áb*, as 'Áb-i-Qhín-áo,' 'Áb-i-Tulanbah,' etc., and the *Biáh* is styled '*áb*' and '*daryá*.' Further, if the plural form of *رود*—*rúd*—'river' was meant, we should have *رودها*—*rúdahah*, not *رودنه*—*rúdnah*. From this it is quite clear to me, that the word in question refers to a place, not to rivers or river beds, although, at the present time, some small river channels do intervene between Ajúddhan, on the north side. There is the dry bed of a small river which is known as the *Ḍanḍi* (the diminutive form of *Ḍanḍah*, probably); but, what is here referred to—*رودنه*—is south-east of Ajúddhan, and between it and *Khālīṣ* Koṭlah. This so called *Ḍanḍi* may possibly refer to what is left of the channel of the minor of the three branches into which the *Hariári*, or *Nili* separated, after the *Biáh* and *Sutlaj*, farther north, had united, again to separate, but this junction took place after the time of Amīr Tīmūr's invasion; and, moreover, he had passed south-east of Ajúddhan towards *Khālīṣ* Koṭlah before *رودنه* was passed, not crossed. It is quite certain that the great *Ḍanḍah*, or high bank of the last independent channel of the *Sutlaj*, is not meant in the text above; for, instead of being situated between Ajúddhan and *Khālīṣ* Koṭlah, and west of the latter place, the great *Ḍanḍah* is fourteen miles east of it, and further more, at the period in question, the *Sutlaj*, in its inclination westwards, had not yet made that new channel for itself, and still flowed in that by *Uboh-har*.

<sup>265</sup> In the extract given by the Editor from his own translation from the *Zafar Námah* in "Elliot's Historians," we have the following:—"It is situated far out of the road on the right hand, and is surrounded by the desert of *Chol*." Here he has mistaken the Persian word *chāl*—a wilderness, uncultivated waste, and unpopulated tract, or containing very few inhabitants, but not necessarily a desert—for a proper name! The Editor continues: "For fifty or a hundred *kos* there is no water." This sentence is misleading and incorrect, and will not be found in any copy of the

and the inhabitants of the place obtain water from a *kol-i-áb* or *lako*, which is filled in the rainy season. It was said that no foreign army had ever reached it; and, on this account, the rebels who had fled from Debál-púr and Ajúddhan, and other places, had assembled there. Such a number had reached it, that there was not room for them within; consequently, there were many people, and a vast number of animals and loads of property, left outside. This place, and the territory around, was held by Ráo Dúl-chín,<sup>256</sup> who collected revenue from those parts, and from all who passed that way, either merchants or travellers; and *karwáns* of traders were not safe from his exactions." Suffice it to say, that the place was nearly carried when the defenders called for quarter, and next day Ráo Dúl-chín came out. After this, however, the people again rose, closed the gates, were again attacked; and when Tímúr's troops had gained the walls, they again sued for quarter, which was once more granted. The fugitives from Debál-púr and Ajúddhan, and other places, having however gained an entrance, in conjunction with the Bhaṭis, again broke out, and closed the gates. This, as might be expected, raised the ire of Tímúr; and the place was stormed and captured. Many of the defenders burnt themselves, along with their women, and other belongings. Of the Debál-púr fugitives who had been concerned in the massacre of Musáfir, the Kábulí, and his force of 1,000 men, 500 were put to death, and their families made slaves, and the remainder spared, but the defences of the fort and town of Bhaṭnir were levelled with the dust.<sup>257</sup>

*Ẓafar Námah*, nor is such a word as *kos* to be found throughout the whole work. Compare also pp. 421 and 422 of Elliot's work.

<sup>256</sup> The name is written Dúl-chín, and those who copy from the *Ẓafar Námah* alter it into *Khúl-chín*, but, in Elliot, it is made "*Khal-chín*" of.

<sup>257</sup> All those matters are set down against Tímúr by history compilers to make him out a monster, but they leave out what caused him to act with stern severity. Here persistent treachery, after being twice forgiven, is shown. I wonder whether in the present enlightened days Skobeloff and Komaroff, and other "divine figures from the north" or west would have acted differently? or even if, during the late Afghán campaign the Afghán "rebels" would not have been served much after the same fashion, if they had acted in the same manner after once surrendering? It would have been very strange if they had not. And yet one writer sets down what he supposes to be "*Abu'l Faẓl's little knowledge of Bhaṭṭiána*," which knowledge is, however, very great, as the *A'in-i-Akbari* shows, to "the depopulation caused by 'the firebrand of the universe,' Tímúr." The Chingiz Khán put more people to death after surrendering, at Bukhárá and Samr-kaud alone, than fell in all the wars in which Tímúr engaged during his whole lifetime; and yet some, unacquainted with these historical facts, sing the praises of the "*great Jangez*," without knowing even how to spell his name correctly, and exclaim against "the ruthless tyrant and barbarian, Taimur." Such writers would do well to read, mark, learn, and inwardly



Having disposed of this affair, on the 3rd of the month Rabí-ul Awwal, Amír Tímúr with his force marched fourteen *kuroh* to a place styled the *Hauz-i-Ab*—The Reservoir of Water—and on the following day reached and passed the fort of Fírúzah [in one copy Fírúzkoh—the “Feerozabad” of the maps, not the *Hişár Fírúzah*] and reached the town of Sarastí<sup>253</sup> now Sirsá [“Sirsuh” of the maps], on the Ghag-ghar. It was deserted by its inhabitants on his approach. Halting a day there, his next stage of eighteen *kuroh* took him to near the fort of Fath-ábád [the “Futtehabad” of the maps]. On the 7th, having passed by the fort of Rajab-púr [رجب پور]<sup>259</sup> he reached the fort of Ahroní, which, showing hostility, was sacked and destroyed, and nothing left to mark it but some heaps of ruins. He moved again on the 8th, and brought up in the open plain near the *karyah* of Tihwánah [turned into “Tohanuh” in our maps]. There he came into contact with “a large and powerful tribe called Jatán [Jats] who, for a long period of time, had acquired sway over that part, plundered on the high roads, and way laid *kurwáns* and massacred their people, especially if Musalmáns.<sup>260</sup> Some of these had taken shelter among the hills [low, rocky hills] and *jangals*, the last consisting chiefly of sugar-canes<sup>261</sup> A party sent against them

digest the account of the “Invasion of Islám by the Mughals” in the “*Tabakát-i-Násirí*,” and then they would know more about these matters. Those who would write history should be strictly just and impartial, and also know something of it from the originals, and not from translations only. See Elliot’s “*Races of the North-West Provinces of India*,” Vol. II, pp. 17–19.

<sup>253</sup> Sarastí is the old name of Sirsá: Sursuti, not Sarsuti, is the name of a river; the ancient Saraswatí, described farther on.

<sup>259</sup> This place is called “Rajabpúr,” in the extract from the “*Malfúzát*,” in Elliot’s work; and a few pages farther on, in his extract from the “*Zafar Námah*,” it is “Rajabnúr.” There is very little doubt that the place called “Ryopoor” in the maps, eleven miles and a half to the north-east of Fath-ábád, is the place referred to, and which lies on the route from Fath-ábád to Ahroní, the “Arnaunee” of the maps.

<sup>260</sup> See Ibn Batútah, page 263.

<sup>261</sup> This tract appears to have been notable for the cultivation of sugarcane from early times. Sa’án Mas’úd, son of Mahmúd of Ghaznín, having entered Hind for the purpose of crushing the rebellion of his governor of the province east of the Indus, Ahmad-i-Níál-Tigín, in 426 H. (1034–35 A. D.), marched against the fortress of Sarastí [now Sirsá], said to have been, at that time, one of the most celebrated strongholds of Hind. It had been invested by his father, Sa’án Mahmúd, but he did not succeed in taking it. After having been before it some days, the ruler of that part and stronghold, finding he could not cope with the Musalmán forces, despatched an agent to Sultán Mas’úd, offering to pay down a very large sum, and to afterwards pay a certain yearly amount as tribute. Those offers were accepted, and hostilities were suspended. This Rájah, however, in order to raise the sum to be paid at once, seized on a number of Musalmán merchants and traders, who happened

slew about 200, and returned with a number of captives, and many head of cattle. On the 9th of the month, Amīr Tīmūr started from Tihwānah, and the families and followers, heavy materials, and booty, were sent off towards Samānah under the Amīr, Sulīmān Shāh; and he, having that same day, passed the Kālā' of Mūng [Mūng Alā—turned into "Moonuk" in our maps] halted. Amīr Tīmūr, in the mean time, made a forced march in order to beat up the quarters of those Jāṭs who had concealed themselves in the *janyals* in the neighbourhood of Tihwānah. Some 2,000 of them were put to the sword the same day, and many captives, and much cattle, were taken. In the part entered there was a village

to be in the place when the investment commenced, and were unable to get away, and sought to extort this money from them. The merchants managed to acquaint Sulṭān Mas'ūd with their helpless state and the Rājā's tyranny; and also informed him of the weakness of the Hindūs and their inability to oppose him, and stating, that, if he remained before the place for five or six days more, the enemy would have to come out and surrender at discretion. The Sulṭān was not inclined to wait; and when he became acquainted with the Rājā's tyranny, he resolved to attack the fortress at once. The country round was remarkable for the extensive growth of sugar-cane; so "he directed that they should fill the ditch with sugar-cane," and assault the place. This was done, and the stronghold of Sarastī was stormed and captured.

The drowning of Ahmad-i-Niāl-Tigīn—not "Bināl-Tigīn," as some have written the name—near Mansūriyah on the Mīhrān of Sind, has been already recorded. See note 105, on Bahman-no, page 193.

In the following year Sulṭān Mas'ūd captured Hānsī, after which he moved against the fort of Sonī-ṭaṭ, belonging to Deobāl or Debāl of Hārīānah, as he is called. Several other strongholds are said to have fallen into the hands of the Sulṭān during this expedition, which had never been assailed by the Musalmāns before. His father had despatched an army against one of these, the name of which is written Narsī—نرسی in three MSS. and ترسی—Tarsi in one—but was stopped on hearing of that Sulṭān's decease. Sulṭān Mas'ūd attacked and captured it. He subsequently, just before his return towards Ghaznī, compelled the ruler of another part, whose name was Rām, to submit to his supremacy.

Ibn Aṣīr, the Shāmī, has a wonderful account of the capture of this place—Narsī—which, he says, is related by "the most trustworthy chroniclers." Among other wonders, "the city was," he asserts, "a day's" journey in length"; that it took the whole army of 100,000 horse, "a night and a day to sack the *bāzār* of the 'aṭṭārs and jewellers; that no other part of the city was molested"; and that, "in that *bāzār* alone, such a vast amount of gold, silver, and jewels fell into the hands of the captors, that it was found impossible to compute it, and therefore the shares among the soldiery had to be dealt out by measure"!

It is strange, with his "trustworthy chroniclers" not named, that the only two chroniclers who were contemporary with Sulṭān Mas'ūd, and were in the government employ, Abū-l-Faḍl-i-Bulhaḳī, who was his biographer, so to say, and the Gardāizi, should not mention anything of this wondrous place and its booty; while Ibn Aṣīr should have it at his fingers ends, who wrote more than a century and a half after—about thirty years before the "Ṭabaḳāt-i-Nāṣirī" was finished—and who was never in Hind or near it in his life.

inhabited by Sayyids, who were well treated, and a Dárogah was left to protect them from molestation. On the 10th, Amír Sulímán Sháh who with the families, etc., was in the neighbourhood of Múng, moved again nearer towards the city of Samánah, and remained there that night. On the 11th he again moved and reached the banks of the Ghag-ghar; and Amír Tímúr, who had set out from Tihwánah to punish the Jats, joined Amír Sulímán Sháh on the banks of that river near to Samánah.<sup>262</sup> Having halted there some days to rest the forces and arrange matters, Amír Tímúr again moved on the 15th, and reached the vicinity of the bridge of Kopilah [or Gopilah—كوپله] over the Ghag-ghar as it then flowed. There, the Amírs who had been despatched from the grassy plain—the *Jul-gáh*—of Dúrin<sup>263</sup> at Kábul on particular services [which, unfortunately, are not mentioned], who had reduced all the places met with on their way, this day effected a junction with the rest of the army. The march was resumed on the 16th; the bridge crossed; and, in a verdant plain beyond it, a great camp was pitched. The troops despatched from the banks of the Biáh by way of Debál-púr, here likewise rejoined. On the 17th the whole army moved from the camp near the bridge of Kopilah, and marching a distance of five *kuroh*, reached the bridge of Bakrán or Bagrán [بكران] over the river Sursutí. On the 19th of the month the army marched from thence and reached the *karyak* of Kaithal, which is distant from Samánah seventeen *kuroh*, which is equal to five standard *fursakhs* and two *mil*." Here the army of Amír Tímúr was marshalled in order of battle preparatory to advancing upon Dihlí; and here I shall leave him, after merely giving what the historian of his campaign afterwards says, and in his own exact words, respecting the different rivers of the territory now known (correctly) as "the territory of the Panj-áb."

He says: "The river flowing through the city of Nagar [Sri-Nagar, which he writes with نگر—*gh*], they call Ab-i-Dandánah, and Ab-i-Jamad. Above Multán it unites with the Qhin-áo, and both having passed Multán, unite with the Ráwah, which passes on the other side of that place,<sup>264</sup> and approach each other. After that, the Ab-i-Biáh reaches them, and all these, near to Ucheh, unite with the Ab-i-Sind, and the whole are then known as Ab-i-Sind, which, on the skirt of the territory of Tatah [Thathah], unites with the 'unmán or ocean."

According to the tradition current among the people of this part, at the time of my Survey record, Amír Tímúr is said to have crossed

<sup>262</sup> That river ran under its walls up to the close of the last century.

<sup>263</sup> See my "NOTES ON AFGHANISTÁN," page 689, and compare Elliot here. In the latter's work the Ghag-ghar is always turned into "Khagar."

<sup>264</sup> I shall refer to the fact noticed here, farther on.

the *Qhín-áb*, that is the *Bihat* or *Jihlam*<sup>265</sup> and the *Qhín-áb* united, two *kuroh* south of the *Qaşbah* of *Neko-kári*, now shortened to *Ko-kári*,<sup>266</sup> near where the hamlet known as *Jaso ke* stood, but which has now disappeared. The ferry over it, which appears now to have been abandoned, was known as the *Jaso ke Paṭan*; and there was another at *Neko-kári* above, likewise, called the *Neko-kári* or *Ko-kári Paṭan*, the routes from which ferries led by *Shor Koṭ* to *Tulanbah*. The crossing place was, certainly, not far off, but it was nearer four *kuroh* than two south of *Neko-kári*.

Thus we find from the foregoing, that, at the time of *Amír Tímúr's* invasion of *Hind*, the *Jihlam* and *Qhín-áb* united not far from *Shor*, or *Shor Koṭ*, which is an ancient site, and was inhabited by *Langáh Jaṭs*. It was, in the time of *Akbar Bádsháh*, a considerable town, the chief place of the *maḥáll* of that name, and where the *Dároghah* was located. It had been in ancient times a large and important walled-town, but it has been in a state of desolation for a long period of time. When I last saw it in 1850, the mound on which the old place stood, was covered with extensive ruins, and surrounded with the remains of a wall of burnt bricks; and it was of sufficient elevation to be prominently seen for several miles round about. I believe it to be the site of the very fortress near, or in the fork between the confluence of the two rivers, more particularly since there is no trace of any other old fortress in the neighbourhood near where the confluence of the two rivers anciently took place. *Shor*, I may mention, means 'noise,' 'tumult,' 'agitation' or 'commotion of water,' etc., but that is a Persian or *Tájízík* word, and we might expect to find it called by a *Hindí* name.<sup>267</sup> I merely mention the coincidence.

<sup>265</sup> Both the historian, it must be remembered, and *Amír Tímur*, himself, always call the *Wihat* or *Bihat* or *Jihlam* river, the *Jamad*.

<sup>266</sup> This *Qaşbah*, which appears in our maps as "*Nee Kokaruh*," and "*Neeko-karah*," no two maps being alike, at the time of the Survey referred to above, was peopled by *Sayyids*; and in a grove of trees, a little to the south-east thereof, is the grave of the *Sayyid*, 'Abd-ullah-i-Jaháníán, of the *Uchóh* family of *Bukhárá* *Sayyids*, apparently; and he is held in such veneration that they would not even use the dead wood of the trees for fire-wood. The defunct was a man of such great *neko-kári*—that is, benevolence and goodness—that the place was named, after him, the *qashbah* of the *Neko-kári*, but which, through constant use became shortened to *Ko-kári*.

<sup>267</sup> Unless, as is not improbable, the fact of these parts having been under *Muḥammadan* rulers, who used the *Tájízík* language, certainly for four centuries before the appearance of *Amir Tímur* in this neighbourhood, if not from the occupation of *Multán* by the 'Arabs, seven centuries before his time, was the cause of the *Hindí* name (if it ever had one: the additional "*Koṭ*" is comparatively modern) being discontinued. One of the descendants of the 'Arabí tribe of *Tammím* was still

The old bed of the Chin-áb, or rather the most prominent, and probably most recent, of its former channels, can still be distinctly traced within three miles of Shor-Koṭ on the east and south to this day. At the period in question, and for sometime after, Shor-Koṭ was in the Chin-bath Do-ábah,<sup>263</sup> as shown from the movements of the Mughal raiders, who yearly entered these parts up to the year 834 H. (1430-31 A. D.); but, subsequently, on the Chin-áb inclining farther towards the west, like the other three rivers east of it continued to do, it was shut out of that *do-ábah* and transferred to the Rachin-áb Do-ábah, in which it still continues, and lies some six miles east of the left or east bank of the united Chin-áb and Bihat or Jihlam. These two rivers, at the time of Amír Tímúr's invasion, had, for some time, separated from the Ráwí and Biáh,<sup>269</sup> and flowed on the west side of Multán, while the two latter still passed on the east as heretofore. More respecting them, and the great flood which devastated the whole northern Panj-áb territory, between the Chin-áb and the Sutlaj, anterior to the arrival of Tímúr in these parts, and the probable changes caused thereby, will be found in the account of the rivers farther on.

Then as to the rivers farther east, let us take into consideration that Amír Tímúr's forces, including followers, could not have been less than 80,000 or 100,000 persons, and as many horses; and, that while he crossed from Ajúdhdhan to Bhatnúr with 10,000, the more numerous portion, with the followers, baggage, and heavy materials of the army, crossed direct from Dehál-púr to Múng Alá, and all re-assembled on the banks of the Ghag-ghar near Samánah. In doing this they must have crossed the beds of all the rivers but one tributary to the Hakrá or Wahindah, including the old channels of the Sutlaj, whether they contained water or were dry; and it is strange, that, although Amír Tímúr must also have crossed the channel of the Sutlaj, whether it

in possession of territory on the Bihat or Jihlam and the Chin-áb when Amír Tímúr crossed the Indus. See note 216, page 279, and a note farther on.

There is an old saying, that, "Shor is notorious for tumults, as Qhandani-ot is for the quarrelsome proclivities of its inhabitants."

Cunningham, in his "Ancient Geography of India," "identifies" Shor Koṭ as "one of the towns of the Malli," and with "the town of Po-lo-fu visited by Hwen Thsang;" and supposes the tradition current in the neighbourhood of its destruction by "some king from the westward about 1300 years ago," to be the "White Huns." We need not go quite so far back, and may leave the "White Huns" and "Hwen Thsang" for what they are worth.

<sup>263</sup> Like the names of towns and villages, this *do-ábah* appears in our maps under the incorrect names of "Jech Doab" and "Jech Doab," and, certainly without the meaning of the word being understood, or how written in the original. See note 277, page 296.

<sup>269</sup> See page 291 and note 265.

contained water or not, between Ajúddhan and Khálíq Kotlah, the Ghag-ghar is the only river mentioned by name between the Bíáh and Samánah. At the same time, although a *chál* or waste tract is mentioned between Khálíq Kotlah and Bhañuir, there is no mention of other *chále*, neither is there the least allusion to any scarcity of water, and of which such large bodies of troops and animals must have required a considerable quantity. I have estimated the number of Amír Timúr's forces at a low figure, and have reason to suppose that they were much more numerous; for it cannot be supposed that he would have invaded Hindústán, intent on reaching Dihlí, at the head of a smaller number. In recent times, say in the last century, it would have been a dangerous experiment, if not an impossible matter, to take such a numerous army in two bodies by these routes.<sup>271</sup> While there is no mention on the part of the historian that the beds of these rivers were passed, or that any rivers had dried up, or were running, at the time—a matter much to be regretted—but as no scarcity is mentioned, and the halting places were merely the ordinary ones, and not specially chosen, we must conclude that there was water in the beds of some of these rivers (including the Hakrá), but not sufficiently deep as to require remark in crossing them.\*

\* Let us now see what the A'in-i-Akbarí says respecting the A'b-i-Sind and other rivers, and the Do-ábahs and *Súbahs* of the Panj-áb territory and parts adjoining it on the east, after which I will give some extracts from the Survey made of these parts about a century since, to which I have before alluded.

"The *Súbah* of Lúhor," he says, "extends from the Sutlaj [not the Ghárah or Harihári, but higher up: above the present junction of the Bíáh and Sutlaj] to the A'b-i-Sind, a distance of one hundred and eighty *kuroh* in length, and from Bhimbar to Qhaukhandí,<sup>272</sup> a dependency of Sat Garh,

<sup>271</sup> The Sayyid, 'Abd-ullah Sháh, who, with only a small following, when he was despatched to Kábul in 1780-81 by Governor Hastings, found the route from Bikánir by Phúgal and Moj Garh to U'ohohh, sufficiently difficult. He lost a son, and a number of his people, between Bikánir and U'ohch. The Hon'ble Mountstuart Elphinstone also passed by the same halting places on his way to Kábul, but he went to Baháwal-púr from Moj Garh.

I hope shortly to give the Sayyid, Ghulám Muḥammad's account of his father's mission and his own to Kábul in his own words. See note 249, page 282.

<sup>272</sup> Qhaukhandí was a *maḥdál* of the Raghin-áb Do-ábah of the Multán *sarkár* of the Multán *súbah*, and belonged to the Khaṛl Jats. It is now an insignificant place, and at this time is in the Bári Do-ábah, showing how places have been changed from one *do-ábah* to another, fourteen miles E. N. E. of the town of Hurappah, and about a mile from the south or left bank of one of the old channels of the Ráwí, three miles and a half from the high bank farther south-east. It appears in the maps as "Ohowkundee." Satá Garh, under the name of "Sutgurrah," and "Shutgurrah,"

eighty-six *kuroh* in breadth. Six rivers run through it, all coming from the Koh-i-Shamálí. 1. *Sútlay*, the old name of which is *Shutlay* [but *شكدر* in the printed text. See note 205, page 259], the spring-head being at Káhlúr. Lúdhíánah, Rú-par, and Mághhí Wárah are on its banks. At the *Guzar* or ferry of Loh [لوه]<sup>273</sup> it unites with the Biáh. 2. *Bídh*, the old name of which is *Bipáshá* [بپاشا], rises at Biáh Kund, near the Koh-i-Galú [كلو]. Sultán-púr is near this great river. [It now lies eight miles west of it, and three miles north of Loh or Loh-Wál]. 3. *Ráwí*, the old name of which is *Iráwatí* [ايرواني]. It issues from the Koh-i-Bhadrál [بدرال, or بهدر], and the Dár-ul-Mulk of Láhor is on its banks. 4. *Chín-áb*, the old name is *Qhandar-Bhágá* [چندر بهگا]. Two rivers rise on the slopes of the Koh-i-Khatwár [in some, *Khishtwár*], one the *Qhandar*, the other the *Bhágá*, and having united near Khatwár, the names become changed to *Qhandar-Bhágá*. It [the united rivers] passes by Bahlúl-púr, Súdharah, and Hazárah.<sup>274</sup> 5. *Bihat* [بہت], the old name of which is *Bidastá* [بدستا]. Its source is a *hauz* or small lake in the *parganah* of Wir in Kash-mír. It flows through Srí-Nagar, and Bhirah<sup>275</sup> is situated on its bank. 6. *Sind*. This river is said to rise between Kash-mír and Káshghar, some say in *Khitá*. It passes by the confines of Suwad [or Suwat], Aṭak Banávas, and *Qhau-párah* to the Balúchistán.<sup>276</sup>

is about thirty miles north-east of *Qhankhandí*, and between two and three miles from the south of left bank of the *Ráwí*, near which *Qhaukhandí* lies, and thirteen miles to the eastward of Fath-púr Ghugherah, "Fattehpoor Googaira," of the maps. Hereabouts, the valley of the *Ráwí* is some thirty-four miles broad, cut up with several channels, showing the great changes the river has made at different periods. *Khat-púr*, the chief place of a *maḥáll*, mentioned in the Mughal raids, and the place, where, at one period, the *Ráwí* used to be forded, was the northernmost part of the Multán *súbah*, and is repeatedly mentioned in history, but that seems to have disappeared.

Sath Garh is the place to which Mr. M. L. Dames's (See the "*Journal*" for 1881) "mighty *Chákar Rind*," a petty Balúch chief, retired, when he had to leave the Balúch country. He did not "found" any "kingdom with its capital *Sevt* (*Sébt*)," and did not "wage war with *Hunan Chughutta*," as *Humáyún Bádsáh* has been styled by him. More respecting *Qhákar*, the Rind, will be found farther on. See also my "NOTES ON AFGHANISTÁN," etc. page 347.

<sup>273</sup> See ante page 278 and note 244.

<sup>274</sup> Or *Takht-i-Iazárah* on the west bank of the *Qhín-áo*, 8½ miles N. N. W. of Jalál-púr, and 34 miles below Rám-Nagar, in the *Qhín-hath do-ábah* of Láhor *súbah*, with a fort of burnt brick, belonging then to the *Khokhars*.

<sup>275</sup> Also written *Bhíhrah* (بہہرہ) in some copies of the *A'in*. This is the fortress of the Tammímí, *Shihab-ud-Din*, Mubárák Sháh, which Amír *Timúr* captured, but he calls it *Báhráh*, as does his descendant, *Bábar*, who took possession of it before he succeeded in his designs upon *Hindústán*. See note 246, page 279.

<sup>276</sup> The present age may be called the "Age of Gazetteers," but, unfortunately,

"The Bádsháh named the part between the Sutlaj and the Bfáh, Bíst-Jálandhar; that between the Bfáh and the Ráwí, the Bári [not between the Harihári, Núrní, or Ghárá, and the Ráwí, it will be observed. This is important, because, even now it is considered to extend from the dried up Bfáh to the Ráwí]; that between the Ráwí and Chin-áb, Rachin-áo or Rachin-áb; that between the Chin-áb and Bihat, Chin-

many of them contain much arrant nonsense, old statements re-dished up, and the stories of Dow and Briggs renovated. There is a compilation issued from the "Intelligence Branch of the Quarter-Master General's Department" in India, called the "Peshín Gazetteer," which is called Part III of a "confidential" Gazetteer of Afghanistan, "*intended for Political and Military reference.*"

"Peshín" means 'anterior,' 'antique,' and also 'the afternoon,' but the tract of country which the compilation in question is intended to give information upon chiefly, is that part of the southern Afghánistán called Púshang (which 'Arab writers called Fúshanj, according to their system of writing old Tájík words), through which part we are carrying a Railway (a good part of which, from a recent "Report" has been found useless), and call it in public documents "*Balochistan,*" because it is in the Afghánistán.

I will give a specimen of the historical information contained in this "Antique" or "Afternoon" Gazetteer, suggested by the above statement of Abú-i-Fazl. It says:—"The Baluch tribes to the west [the Balúghistán is referred to], being the inhabitants best known to Nádir Sháh, that monarch bestowed their name on the country, which properly should be styled Bráhúistán, if supremacy and numbers are of any weight." I venture to say that there is no authority for stating that Nádir Sháh gave name to the Balúghistán, which was known by that name centuries before his time.

It will be seen from what Abú-i-Fazl states, that it was the well known name of their country, ages before Nádir Sháh's time, and also before the Bráhúís were known to history. Of course, it is not to be supposed that the above was intended to mislead, but it is misleading nevertheless. It is the outcome of persons writing on subjects respecting which they have no special knowledge, and copying the incorrect statements of others, upon which they have to depend.

The compiler of the "Peshín" Gazetteer, however, is not the only one: there is a "pamphlet"—written for some political purpose apparently, entitled "Our Western Frontier," London, 1887—containing much after the same fashion, by Mr. C E. Biddulph, of the Bombay Uncovenanted Service. At page 8 he assures us that "*the terms Afghanistan and Beloochistan, are arbitrary and fictitious;*" that "*they are terms we have adopted from motives of convenience;*" that "*the region called by us Beloochistan (p. 13),*" is a "*term invented by us (p. 15);*" and that, "*the term Afghanistan is one of European invention (p. 16).*"

It is very evident that the writer is unacquainted with Abú-i-Fazl, much less with older writers by five or six centuries. When a person sets himself up as a teacher of others respecting the geography, history, and ethnography of a country, he ought, at least, to know something of its past history. The author of the pamphlet in question will find considerable information on this head from the Muhammadan writers in the Fifth Section of my "*NOTES ON AFGHANISTÁN AND PART OF BALÚGHISTÁN.*"



hath;<sup>277</sup> and that between the Bihat and the Sind, Sind-Ságar.<sup>278</sup> The distance from the Sutlaj to the Báh is fifty *kuroh*; from the Báh to the Ráwí, seventeen; from the Ráwí to the Qhin-áb, thirty; from the Qhin-áb to the Bihat, twenty; and from the Bihat to the Sind, sixty-eight *kuroh*."

"The Multán *Šubah*," he says, "before the territory of Thaṭṭah [that is middle and lower Sind—Siw-istán or Wicholo, and Thaṭṭah or Lár, making five *Sarkárs*] was included, extended from Fírúz-púr to Siw-istán [that is, their boundaries: not to those particular places], a distance of four hundred and three *kuroh*, and adjoins the *Sarkár* of Sahrind on the east; Shor on the north; the *Šubah* of Ajmír on the south;<sup>279</sup> and Kíqh and Mukrán on the west.<sup>280</sup>

"The Bihat unites with the Qhin-áb near the *parganah* of Shor,<sup>281</sup> then running for a distance of twenty-seven *kuroh*, near Zafar-púr,<sup>282</sup> they unite with the Ráwí, and all three become one river. Sixty *kuroh* lower down, near Uḥqḥh, they enter the Sind. For about twelve *kuroh* above, to near Fírúz-púr, the Báh and Sutlaj unite, and after that lose their names, and are styled Harihári [هریاری],<sup>283</sup> Dand [دند],<sup>284</sup> and Núrní [نورنی]. Near Multán, having united with the other four [rivers], they flow together.<sup>285</sup> Every river that enters the Sind [river] acquires the name Sind."

<sup>277</sup> Cunningham, in his "Ancient Geography of India," page 154, says: "The names of the Doábs [Do-ábahs?] were invented by Akbar, by combining the names of the including rivers. Thus, *Chaj* is an abbreviation of Chenáb and Jhelam; *Richna* of Rávi and Chenáb; and *Bári* of Biás [there is no river so called except by Europeans] and Ravi." What Akbar Bádsháh called them may be seen from Abú-l-Faẓl's statement above. There is no such *do-ábah* as "*Chaj*." This is a mere mistake for Qhin-hath. This name is obtained, as mentioned in the Survey I have before alluded to, from 'ch' and 'n,' the first two consonants in Qhin-áb, and 'h,' and 't,' the two last consonants of Wihat or Bihat (also called the Jhilam)—Qhin-hat, to which compound word a final 'h' is sometimes added, making it Qhin-hath, as above described. The name Bist-Jhálendar is obtained in the same manner from 'b' and 'í' of Biáh, and 's' and 't' of Sutlaj. In Blochmann's printed text of the *K'ín-i-Akbarí*, the 's' has been left out.

<sup>278</sup> Abú-l-Faẓl gives his master rather more credit here than he is entitled to. Sind-Ságar is as old as the time of Ibn Khurdád-bih and the Mas'údí. See page 210.

<sup>279</sup> See note 239, page 274.

<sup>280</sup> After Thaṭṭah and its dependencies were included therein. See K'ín.

<sup>281</sup> Shor, at present, is some twenty-five miles below the place of junction. See page 291, and note 267, and also a note on this subject farther on.

<sup>282</sup> This place is not now known. The junction must have been a few miles lower down than the present place of meeting.

<sup>283</sup> Also written Harihári [هریاری].

<sup>284</sup> Or Dandah as it is sometimes written. See also note 240, page 275.

<sup>285</sup> I have given his words literally here. See note 239, page 274, and note 254, page 285.

It will be noticed that Abú-l-Faẓl mentions, that, after this junction of the Bihā and Sutlaj, the newly united river is known by these three different names above-mentioned, and that they unite for twelve *kuroh* only. He says not one word such as can be construed, by the greatest stretch of the imagination, into *three* rivers, much less *four*. It will also be observed here that he mentions in rotation where the other four rivers unite, but that he leaves out the name of the place of junction of the Harihári, Dand, or Núrní (he never uses the name Ghárah here, it will be remarked) with the others, merely mentioning the fact of its uniting with them.<sup>296</sup> It seems strange that he should have omitted to name the place of junction in this case, because Multán is a little over seventy-one miles, as the crow flies, above Uchobh.

"At Thaṭṭah," he continues, "the Sind is called Mihrán,<sup>297</sup> and all six rivers, in one stream [sic in text] pass under [the walls of] Bakhar, one portion north, and the other south of the fort. The Sind river every few years goes from south to north, and causes great ruin, consequently, the dwellings are constructed of sticks and rushes."<sup>298</sup>

<sup>296</sup> See note 250, page 282.

<sup>297</sup> It is so called, by his own account, much higher up than Thaṭṭah; and at the period in question, *seven*, not six rivers, flowed past Bakhar.

<sup>298</sup> See page 217, note 151.



# JOURNAL

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Part I.—HISTORY, LITERATURE, &c.

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*Set Mahet.*—By W. HOEY.

### INTRODUCTION.

The following notes originally formed a report on the excavations and explorations conducted by me at Set Mahet during the cold weather of 1884-85, under the orders of the Local Government, at whose disposal the Maharáni of Balrampur had placed Rs. 5,000 for the purpose. Work did not commence until the 15th December 1884. Operations of excavation continued up to about the middle of May 1885. Unfortunately more than one-third of the money at my disposal had to be expended upon cutting the dense jungle which covered the site.

Once the jungle had been cut I fixed on certain prominent features and laid out lines which the labourers, who were distributed into gangs, were required to follow under the supervision of gangmen. The result was that I have been able in the case of Mahet to lay out some of the general outlines of the city, the gates and the main street of the eastern part, and I think I have determined what the chief mounds in that quarter represent. I have also found some buildings, both Jain and Hindu, in the western quarter, and have opened up the mound of Somnâth. Outside the city, I have shown what Baghela Bâri and

Kandh Bári are. I have also explored the smaller mound near Ora Jhár, called Panahiya Jhár, and have shown what it was. The large mound of Ora Jhár I have left practically untouched. I have examined the buildings outside the Imliya Darwáza, the western gate, and found a large number of seals and other remains there, but the uses of the buildings are still problematical, and we can only surmise that they formed an apron to the fortified gate.

As to Set, erroneously spelt by previous writers Sahet, I explored it more fully, and I would refer to the full details and plans which I give. Here I need only say that my explorations at the octagonal well show beyond doubt that the lowest present level of the surface of the Jetavana site is at least thirteen feet above the original garden-surface. This fact will of itself show how vast an undertaking the exploration of this venerated ruin is. I regret now that I did not confine myself to this alone.

The maps and plans which I have prepared are numbered and are as follows:—

1. General map of Set Mahet.
2. Map showing location of Ora Jhár and Panahiya Jhár with reference to the city.
3. Map showing outline of both Ora Jhár and Panahiya Jhár irrespective of relative location.
4. Plan of the old Buddhist building in the mound near Kandh Bári with the later Hindu shrine crowning it.
5. Plan of Set, showing all buildings opened up and trenches cut by me.
6. Plan of building No. 1 in Set.
7. Plan of Gandha Kuti.
8. Plan of Kosambha Kuti.
9. Plan of buildings Nos. 17, 18, 19 in Set.
10. Plan of buildings Nos. 21, 22, 23, and 24 in Set.
11. Plan showing the so-called octagonal well, and the pillar and stupas near it.
12. Sáriputta's stupa.
13. Plan of Mahet South, showing Broad Street and part of the line of shops.
14. Plan of Mahet East, showing Saiyad Míran's Dargáh, the Pakka Kuti, the Kachcha Kuti, and Angulimála Stupa.
15. Plan of Pakka Kuti.
16. Plan of Kachcha Kuti.
17. Plan of Mahet West.
18. Plan of Somuáth.

19. Plans of two Jain temples.

20. Plan of the Hindu temple.

The text falls naturally under five heads :

1. An historical sketch, a compilation of whatever data we have to go upon, whether history or legend. It will be found to contain something readable, if not very valuable, in the passages referring to Saiyad Sálár's invasion and the translation of the popular ballad relating to the episode at Bahraich, containing references to Set-Mahet.

2. A general review of places outside Set and Mahet and an explanation of the General Map.

3. An account of the explorations at Set.

4. An account of those at Mahet.

5. A stone inscription from Set.

## PART I.

### *General Historical Note.*

The ruins of Set Mahet stand on the west bank of the Rapti, where that river crosses the boundary between the modern districts of Bahraich and Gonda in the province of Oudh. Local tradition connects with it Suhel Deo, one of the opponents of Saiyad Sálár, and this would bring it into touch with one of the earliest episodes of Moslem invasion and aggression during the period of Muhammadan supremacy, but the place has, as far as we know, played no part in later history. Yet it had associations, political and religious, for Hindu, Jain, and Buddhist more than a thousand years before the founder of the Muhammadan faith was born. Over the history of this long period of religious, social, and political revolutions a veil is spread, lifted at but a few and long intervals, when we see the city the centre of political life and religious movement. At other times we seem to penetrate the veil, but not until we have a broader and more intimate knowledge of Sanscrit and Pali literature, and of the peoples lying north of Oudh, shall we be able to fill in the outlines of its history.

Before stating anything as to the result of recent explorations, I have thought it both advisable and regular, to bring together in a connected form all that I have been able to gather of historical fact, and perhaps of legend, as a basis of operation. This will show both the data we have to guide and the matter we have to illustrate.

The name Set Mahet has been, as it seems to me, erroneously, supposed to be a rhyming word formed according to common usage, on the analogy of 'ulta-pulta' and similar words. The Set alone is then taken to be a corruption of Sawatthi. Some people finding the word

'set-met' meaning 'topsy turvy,' and seeing its resemblance to Set Mahet, have supposed that the place as a great ruin has been so called in allusion to its upheaval, which tradition says occurred on Suhel Deo's fall. The people on the spot tell the story and the curious fact exists that they call the Jetavana mound Set. The settlement map first prepared after the annexation calls it Set, and the patwáris of the neighbourhood preserve the name. This is of vast importance, for the name Set Mahet, which is the correct spelling as I have ascertained, is wholly different from the word 'sent-ment' which is suggested as its derivation, and the name would obviously have been not Set Mahet, or Sahet Mahet, but Set Met if this derivation were correct. The name Sahet Mahet hitherto applied by those who follow General Cunningham must be discarded. It seems to me that Set is a corruption of Sawatthi and that it probably came to be applied eventually by visitors to the Jetavana, as it was the chief attraction after the decline of the city, which, though larger, was but a decayed ruin, and was less attractive to the pilgrim. The city was then probably known as Sawatthi Mahati, the larger Srawasti, and this, having been curtailed locally to Mahati, became corrupted to Mahet.

The name which the city bears in Sanscrit, Srávasti, is said to have been given to the city by its legendary founder, Saravasta, who is represented to have been a king of the Solar dynasty: but this may be set aside for the more obvious derivation, the 'pleasant city' or 'city sacred to Sri' [Sraya Vasti], implied in its fame as 'the city of the seven precious things' and thus sacred to the goddess of wealth and plenty. A remarkable passage occurs in the 'Romantic History of Buddha' [Beal, p. 11], where Buddha is consulted prior to his conception as to the place where he would elect to be born. Savatthi is proposed, the capital of the kings of Kosala. Buddha declines the suggestion, saying: 'The kings of Kosala have descended from Matañgas [probably we should read Malangas] "both on the mother's and father's side, of impure birth: and in former days they were of small repute, "without any personal courage or nobleness of heart: the country comparatively poor: although there are the seven precious things there, yet "they are in no abundance. Therefore I cannot be born there."

It is, I think, equally fallacious to attempt to establish a connection between the name of the city and the name of the river. The Pali name of the Rapti is Aciravati, which still survives in the softened form of Ahiravati, which the river bears in its course through the hills, a name which reappears as Irrawaddy in Burmah. The Sanscrit form of the name is Airavati. Thus the Sanscrit words Sravasti and Airavati stand corresponding to the Pali Savatthi and Aciravati, and it is not easy

to see how in either case the name of the city could have been derived from that of the river. The connection of any of these with Savitar the sun-god is equally unobvious. I have only to add that Fa Hian calls the city Showei while Hwen Thsang calls it Shylofasiti.

It has been supposed that the city mentioned by Ptolemy under the name of Sapolis is Sravasti. The suggestion has arisen probably by taking the Pali Sa and joining it to the Greek—polis (city) as a substitute for—vasti—vastu—vatthi. However neat this conception may be, I think we must discard it. Ptolemy mentions four cities: Boraita (v. l. Boraila), Sapolis, Eorta and Rappha, lying west of the river Sarabos. We know that Sarabos is the Sarayu or Ghágrá which appears in Pali as Sarabhu. It seems that Ptolemy received the Pali form and wrote Sarabos as the Greek equivalent, but the position of the four cities with reference to the river forbids our taking Sapolis as a rendering of Savatthi. The four cities must, I think, be looked for in the Ganges—Ghágrá Duáb.

The earliest data which we have connected by tradition with Sravasti are derived, according to some, from the poetical accounts of the Aswamedha of Yudishtir given in the Mahabharata and the Jaimini Bharata or Jaimini Aswamedha. Unfortunately I have not a copy of the former at hand, but I have consulted what purports to be a Hindi rendering of the latter. To it therefore I confine myself, and I must correct a mistake into which General Cunningham and Mr. Bennett have fallen when they accepted a lame tradition and gave a line of Gauda or Gonda rajas:

- A. D. 900. 1. Mayura-dhwaja or Mora-dhwaja.
- 925. 2. Hansa-dhwaja.
- 950. 3. Makara-dhwaja.
- 975. 4. Sudhanwa-dhwaja.
- 1000. 5. Subil-dal-dhwaja (contemporary of Mahmud).

The Jaimini Bharata mentions several kings and their kingdoms into which the famous steed Shyamkaran found his way. Among others he came to the country of Raja Hansa-dhwaj whose capital was, as given in the Jaimini Bharata, Champakapuri. Local tradition has transformed the name to Chandrikapuri. Arjun was commanding the force which followed the horse. Hansa-dhwaj was for submitting to a peace, but he was overruled by his queen, who said Krishna would come and a view of the divine being be vouchsafed in the battle. The king had two sons, Surath and Sudhanya, who both perished in the fight, but the latter left his wife pregnant and she bore a son, Bibek, who continued the royal line. The contest was in truth unequal from the first, as might be expected when Arjun was aided by Krishna. The king's army



d and he ordered his ministers, Sankh and Lakhit, to prepare cauldrons of boiling oil and to throw into them all who turned from battle. Vidhana had gone to take leave of his mother and wife, and the latter retained him in love. He was late in joining his father, who ordered him to be thrown into a cauldron of oil, but he came out of the seething undiminished, entered the fray and perished. I think we cannot accept the identification of Champakapuri with Set Mahet, as the capital of Kosala in the days of Yudishthira and the Mahabharata. The capital of Hansadhwaj was probably Bhágalpur in Bengal.

Srávasti emerges into full light in Buddha's lifetime about 500 B. C. We then find Prasenajit, son of Aranemi Brahmadatta, ruling here as king of Kosala. He was probably of about the same age as Buddha. He was twice married. His first wife was Varshika, a Kshatriya princess, by whom he had a son named Jeta. His second marriage was probably a *mésalliance*. The woman whom he married Mallika, was not a Kshatriya. By her the king had a son Virudhaka who succeeded him. She was also probably mother of Seger Sandalita, a son of Prasenajit, who is said to have been elected ruler of Tibet and to have been the first king of that country.

The marriage of Prasenajit and Mallika was an event of much importance and, being the origin of one of the most important events in Buddha's life, must be noticed here. The Sakya Mahánámán of Kapilavastu was Buddha's paternal uncle and of course a Kshatriya. He brought Chandra, the orphan daughter of a Brahman steward, to live in his house and help his aged wife. She is said to have been in the habit of weaving pretty garlands of flowers and so Mahánámán called her Mallika, the 'wreath-girl.' I think it not unlikely that the name betrays a connection with the Mallas, and that the story about the garlands is merely a *fabula e nomine*. Anyhow, one day Prasenajit came to Kapilavastu during a hunting excursion, saw her in Mahánámán's garden, fell in love with her and eventually married her. The fruit of this union was Virudhaka. At the same time Prasenajit's *purohita* was presented with a son, Ambharisha, who became a close friend of the young prince. On one occasion, when the two youths were on a hunting expedition together, they came to Kapilavastu, and entered the Sákya's park. The offended Sákya spoke of Virudhaka as the son of a slave, alluding to his mother's origin, a Brahman attendant in a Kshatriya household, and Virudhaka was so incensed that he vowed to exterminate the Sákya after his father's death. When Virudhaka ascended the throne, he organized an expedition against the Sákya of Kapilavastu, but Buddha went out of Srávasti and stopped his advance, as will be explained hereafter. The threat was, however, executed

subsequently with too terrible cruelty. I shall return to this narrative again.

It cannot be inferred from the fact of a raid being made by a king of Srāvasti on the Sākya of Kapilavastu, Buddha's native place, that the latter were independent of the king of Kosala. The Sākya were, like the royal house of Srāvasti, Kshatriyas, and their position was somewhat that of a clan living in federated subordination to the greater power of the Kosala sovereigns. Suddhodana, Buddha's father, though spoken of as a king, was probably not more than a powerful taluqdar of modern days, who happens to be not only a large landholder but also the head of a much-ramified brotherhood.

It is highly improbable that Buddha visited Srāvasti before he attained enlightenment. We may safely say that he did not. During Buddha's early residence as a teacher at Rājagriha, Sudatta, a wealthy merchant of Srāvasti, came on a visit to a householder of Rāja-griha who gave a feast in Buddha's honour. During his stay, Sudatta, who was already a man of exemplary humanity and charity, known as 'the feeder of the orphan and the widow' (anāthapindada), visited Buddha, and under his teaching became a lay follower. Sudatta then invited Buddha to come to Srāvasti, but Buddha demurred as there was not a vihāra at Srāvasti. Sudatta offered to provide one and Buddha promised to come when it had been provided.

Sudatta returned to Srāvasti and procured a site for the construction of a vihāra. King Prasenajit's eldest son, Jeta, had a garden or park, which Sudatta fixed upon and proposed to purchase, but the prince declined to sell it unless enough gold coins were paid to cover the ground required. Sudatta complied and had covered nearly all the ground when Jeta, stirred by the sacrifice which was being made, declared himself satisfied and asked to be allowed to retain the part which was left. On it he built a vestibule, which he presented to the Order, when Sudatta presented the vihāra which he had built on the rest. When the ground had been procured, Sudatta, went again to Buddha and asked him to send one of his disciples to superintend the erection of the vihāra. Buddha deputed Sāriputta who came to Srāvasti and encountered much opposition from the members of other Orders, but he eventually converted them and they joined the Buddhist Sangha.

Buddha came to Srāvasti when the building was complete and spent the *was* of the third year of his ministry here. He named the place by two names and gratified both donors: *Jetavana* after the prince and *Anāthapindadārāma* after Sudatta. King Prasenajit visited Buddha and heard a sermon which led to his conversion. His fifth *was* was passed by the Blessed One at the Jetavana, and out of the remaining forty-six

years of his life, the lenten seasons (*was*) of about one half were spent at Srāvasti, either here or in the Purvārāma.

Visákha, one of the sons of Prasenajit's prime minister (Mrigadhara), was married to Visáklá, the daughter of the banished minister of the preceding king, Aranemi Brahmadata. This lady was highly celebrated for the good qualities of both her heart and mind. Her father-in-law called her 'mother' out of respect; and she is known in Pali as Visákhá Migaramáta. Beal calls her 'Visákha-mátawi'. The king Prasenajit was nursed by her through a severe illness, and he called her his sister. She built a vihāra for Buddha near Srāvasti (in it, if the words of the Pali texts be taken literally) and presented it to the Saṅgha. She stands out as a pious matron whose thoughtfulness extended to all followers of the Great Master, but who had a special care for the well-being and good name of the female disciples.

It is not possible to accept as fact or as based on fact every tradition or record of events said to be connected with Buddha and located at Srāvasti. Those which are decidedly historical or semi-historical, as shown by the evidence in local names and the like, may be usefully put together here, and it will be well to endeavour to maintain something of historical sequence.

Foremost we must place the remarkable conversion of Angulimāla. This was a robber of great notoriety, originally named Ahimsaka, who used to murder his victims and carry their fingers strung together by way of a garland round his neck. Hence he was popularly known as Finger-garland (Angulimāla). This malignant scourge was subdued by the benign teaching of Buddha and became an Arhat. He is held up as an illustration of the inevitable suffering which even a good man must endure in this life as the result of accumulated evil actions. Anguli-māla lived in the monastery outside the city (probably the Jetavana) and when he went into the city to beg he was greeted with derision and made the butt of missiles. He returned on one occasion to Buddha covered with blood, his garments torn and his alms-bowl shattered. Buddha then delivered the discourse on the inevitable causality and consequences of evil doing.

We have seen how Sāriputta met with opposition from the rival schools at Srāvasti, and it was not likely that the Great Teacher would pass unchallenged here. When he first appeared in the city, king Prasenajit asked him how he could arrogate enlightenment when other great doctors such as Pūrva Kasyapa did not. Later on, in Buddha's sixteenth year of ministry, Prasenajit, who had embraced the Dharma, arranged for a public controversy between Buddha and the rival doctors. The arena was laid out on a plot of ground between the Jetavana

and the city. Buddha here met Pūrṇa Kāśyapa and probably also Gosāla Mankhaliputta, Sanjaya, son of Vairati, Ajita Kesa-kambala, Karuḍa Kātyāyana and even Nirgrantha Jñātaputta (Mahavira of the Jains). It is said that Buddha's opponents fled in dismay on beholding some magical exhibitions of his power. They left him victor. Pūrṇa's end was melancholy. He was beating his retreat in shame and he met a eunuch. It was his habit to go naked, and the eunuch chaffed him, asking him why he went about 'naked,' shameless like an ass, ignorant of the 'truth.' Pūrṇa said he was in search of a pool to wash himself, and the eunuch pointed one out. Pūrṇa tied a jar full of sand round his neck, leaped into the water, and was drowned.

A greater interest attaches to two other names, those of Gosāla Mankhaliputta and Nirgrantha Jñātaputta, because the latter was the founder of the Jain sect, and the Jain religion survived and prospered in Srāvastī long after Buddhism disappeared. Gosāla had been a disciple of Mahavira, but subsequently posed as an independent teacher and rival of his early master. The only point to be noted here is that Gosāla lived in the pottery bazar of the potter's wife Hālāhālā in Srāvastī. He was thus established at this city as a centre for the propagation of his doctrines, and it is not to be doubted that Mahavira also made Srāvastī one of his centres. Indeed, as I am inclined to think, Srāvastī was not only the capital of a powerful kingdom when Buddha appeared, but it was also the home of philosophical speculation, and Buddha found a number of schools of thought and systems of philosophy already established at Srāvastī, when he proposed to visit it. It may have been from motives of worldly wisdom that he sought the erection of a vihāra prior to his visit. It obviously gave distinction and importance to his arrival and crusade against other teachers to have a splendid monastery ready for his reception. It is likely that the fact of the vihāra being erected outside the city and the unwillingness of Jeta to part with the site, were owing to the opposition of the older schools, and Śāriputta's deputation to superintend the erection of the vihāra was his commission as a pioneer to prepare the way for the entry of the new teacher with due circumstance.

It is probable it was when Buddha met his opponents for the public controversy planned by Prasenajit, that the accusation was preferred against him by the woman Chinschamana, whose story is told so graphically by Fa Hian (*vide infra*). This was not the only attempt made to discredit Buddha by imputations of incontinence. He was also accused of murdering a woman of evil character, but the charge was proved to be false (*vide infra*).

It was not only with the opposition of rival schools and the devices

of calumny that Buddha had to contend. He had also the machinations of a false follower to counteract. Devadatta, his own cousin, was among his professed followers and desired to secure the succession to the headship of the Sangha for himself, but Buddha had determined on another representative. Devadatta therefore tried to create a schism in the fraternity; he obtained a temporary mastery of Ajātasatru, the son of Bimbisāra, king of Magadha, and sought to secure eminence through his aid. He failed. Then he aspired to be king of the Sākya, who entertained the notion of placing Yasodhara (Buddha's wife) on the throne. He went to her one day on the terrace of the palace at Kapilavastu, and seizing her hand, entreated her to become his wife. She resented his proposal and flung him to the ground. He then determined to destroy Buddha, who was at Srāvasti. He placed poison under his finger nails, approached Buddha, feigning to pay him homage, fell at his feet and tried to scratch his legs. The attempt failed. Devadatta then entreated his cousin to forgive him. The Great Teacher promised to do so, if he once more unreservedly professed his faith in him. This he did, reciting the usual formula 'I take my refuge, etc.,' but there was a lie on his lip and he fell living into hell. The death of Devadatta occurred at Srāvasti a few years before Buddha died.

Sāriputta, the great apostle and the architect of the Jetavana monastery, died soon after Devadatta's decease. He died at Nalanda, where he was cremated, and the disciples brought his ashes, alms-bowl, and cloak to Rajagriha, and laid them before Buddha, who took them on to Srāvasti. Sudatta then procured the ashes from the Master and built a stupa over them. It was not long after this that Virudhaka deposed his father and usurped the throne of Kosala. He had long cherished schemes for this end, but had been deterred by the prime minister. One day, however, when that official was driving out in a chariot with Prasenañjit, the latter suddenly conceived a desire to visit Buddha, who was staying in a Sākya town called Metsurudi. Thither they drove. The king handed his insignia to the minister and went in to Buddha. The minister, who had been left outside, drove off in the chariot to Srāvasti and crowned Virudhaka. Mallika and Varshika now left Srāvasti and went in search of their royal husband, whom they met on his return from Buddha, and they told him what had occurred. Prasenañjit sent Mallika back to Srāvasti to her son, bidding her reign with him, while he and Varshika went to Rajagriha. Here the deposed king died, and Ajātasatru paid royal honours to his remains.

Virudhaka had not been long on the throne when his companion Ambharisha reminded him of the vow he had made regarding the Sākya of Kapilavastu. The king prepared his army for a raid, but

Buddha, who was at Srāvasti, went out of the city and sat down under a leafless tree by the roadside. When Virudhaka saw Buddha here, he asked him why he was sitting under a tree which gave no shade. Buddha replied that his kinsmen made it shady. Virudhaka felt rebuked and turned back, but he was induced by Ambharisha to march again, and on this occasion he advanced to Kapilavastu and invested the city. The Sākya sallied out and repulsed their besiegers. They then returned into the city and shut their gates. The Kosala army rallied and encamped round the walls. Virudhaka by false professions induced the Sākya to open their gates. When he had entered, he treacherously ordered the slaughter of the Sākya. He killed, it is said, 77,000, and carried off 500 youths and 500 maidens. He killed the youths and tried to force the maidens into his harem, but they would not go, and so they too were killed. Buddha now foretold that within seven days, the Kosala house would be destroyed and that Virudhaka and Ambharisha would be burned up.

Virudhaka returned to Srāvasti, and noticed Jeta walking on the palace terrace. He sent for Jeta and told him he had been killing his enemies. The prince asked who these enemies were and Virudhaka replied: 'The Sākya.' 'Then who are your friends?' asked Jeta. At this retort this king was so incensed that he ordered the death of Jeta.

When Buddha's prophecy of destruction to the Kosala house was told to Virudhaka, he built a pleasure house in the water and went there with his harem and Ambharisha for seven days. On the seventh day, as they were preparing to return, the sky, which had been clouded, suddenly cleared up. The sun shone out and his rays fell on a burning-glass which was laid on a cushion. The cushion caught fire and the building was burned down. The women escaped, but Virudhaka and Ambharisha perished in the conflagration. Thus closed, as far as we know, the independent dynasty of Srāvasti, which had been favourable to Buddhism, and Buddha does not appear to have again visited the city. He died soon after.

It will perhaps be best to discuss here the legend narrated by Mr. Benett in his article on 'Sahet-Mahet' in the *Gazetteer of Oudh*, and quoted also by General Cunningham, regarding a convulsion which is said to have buried one of the later kings of Suhil Deo's line in ruin. I have heard several versions of the tale and it comes in full to this.

The king, whoever he was, went out hunting one day and returned home very late. The sun was about to set and, according to the customs of his house, he could not eat after sunset. He went to perform his evening devotions, saying he would not eat. His younger brother's wife said it was still day and went up to the housetop and addressed

the sun, who paused to gaze upon her beauty. The king, finding it still day, ate his dinner and washed his hands. The young lady came down, and it suddenly grew dark. The king expressed his wonder, and his queen told him how the beauty of his younger brother's wife had detained the passing sun. Fired with passion, he said: "I must see her." The queen said: "You cannot see your younger brother's wife." The young princess, who was true to her husband, and as modest and chaste as she was beautiful, said that the city would be ruined if he dared to violate her. She went again to the eminence where she had first held the sun spell-bound, and the king determined to pursue her. She implored the sun for aid, and he darted a ray upon the king which burned him and turned the city upside down.

This curious legend is locally attached to some unknown member of the dynasty of Suhil Deo, sovereign of Kosala at the time of Saiyad Salar's expedition, and some ignorant persons narrate it as an explanation of the desolation of Set Mahet, and, converting the name into *Set met* (in the sense of 'topsy-turvy'), add to the legend how the city was turned upside down. Mr. Bennett attaches special value to the legend as showing that the king alluded to was a Jain, 'the inability to eat after sunset, which is the point on which the whole turns, being derived, from the Jain reluctance to sacrifice insect life.' Mr. Bennett also places this occurrence at about forty years after the invasion of this kingdom by Śālār Mas'ūd, and thinks it points to 'the conquest of the country by 'the first of the great Rathor kings of Kananj, Sri Chandradeva, in the 'last half of the eleventh century, when he made a pilgrimage to 'Ajodhia, Kosala, etc.'

I think that the germ of this legend lies in the history of Virudhaka. The point on which Mr. Bennett lays stress, the regard for insect life, is characteristic of the Buddhists equally with the Jains. Thus, the eating by lamplight, being a forbidden custom, is not conclusive for a Jain connection of the legend. The supposition of an invasion by the Rathor king of Kananj is only a guess and, as far as I know, a gratuitous guess: and the Jain faith was certainly flourishing at Srāvasti half a century after Suhil Deo's death, for the finest statues of Mahavira, which have been discovered by me at Somnāth, bear inscriptions of the donor dated 1133 Samvat. How could they have escaped in a siege and sack? Besides it is more than probable that his dynasty ended with Suhil Deo, who fell in conflict with Śālār Mas'ūd's force: and the tomb at Mahet on the site of the king's palace is that of the Kotwāl left at Mahet by the invading Moslems.

It will be remembered that Virudhaka conceived the notion of exterminating the Sākya because of an insult put upon him when he

penetrated to their park on a hunting expedition. The insult referred to his maternity, his mother being a Brahman, who had been a servant in a Sákya household, while his father was a Kshatriya. His first attempt was foiled by the entreaty of Buddha, himself a Sákya, who met him outside the city and induced him to return. His second expedition was unopposed by Buddha, and he not only slaughtered the Sákya but he endeavoured to force some Sákya maidens into his harem. With this, we may compare also Devadattá's attempt to coerce Yasodhara on the palace terrace at Kapilavastu, and his death at Srávasti. In both cases the would-be ravishers were resisted and perished. Virudhaka's death was foretold by Buddha, and there is a marvellous resemblance between the record of the events attending it and the modern legend. Again, if we bear in mind that the Sákya were of the Solar race of Kshatriyas, when we consider the lady's appeal (the lady being Mallika, Virudhaka's mother, or some other person interested in the Sákya) made to the sun, and the destruction of the wicked king by the sun, we can readily see in this story the probable appeal of the Sákya, whose daughters had been murdered, made through some one to a neighbouring potentate of Solar stock, who marched to Srávasti and avenged their cause. Buddha's prophecy of the death of Virudhaka was probably a forewarning of the advent of the ally summoned by his kinsmen to their aid, of which Buddha cannot but have known. Who the avenger was we do not know, but he was probably Ajátaśatru, the monarch of Magadha. On the whole, I think, we may fairly claim this legend, still lingering with the ignorant dwellers about Mahet, as a confused memory of the fall of Virudhaka, which is detailed with some degree of historical accuracy in the Tibetan records. However this may be, with Virudhaka's death the curtain falls on Srávasti, and does not rise again for close on nine hundred years.

What do we know and what can we surmise as to the interval between 477 B. C and 410 A. D. ?

To this we must answer that we *know* nothing as to Srávasti itself, but there are certain historical data from which we can infer probabilities.

First of all, Srávasti no longer appears as the capital of an independent kingdom. In the next place, the kingdom of Magadha continued to maintain its independence and individuality and to advance in prosperity until the zenith of its greatness under Asoka, who reigned ten generations after Ajátaśatru. Again, the Tibetan record that a son of Prasenajit became the first king of Tibet, possibly covers a migration northward of the family of the Srávasti kings after Virudhaka's death.



Further, there is some reason to suppose that the kings of Kosala and Magadha had been rivals, for it seems that Prasenajit had once in Buddha's lifetime inflicted a defeat on Bimbisāra. When Prasenajit was deposed by his son, he retired to Rājagriha, the capital of Magadha, and when he died, Ajātaśatru paid royal honours to his remains. What was more natural than that the Sākya should appeal to Ajātaśatru to avenge their cause? We do not actually find authority for supposing that Ajātaśatru did come to their aid. Add to all this that Ajātaśatru had become the firm friend and patron of Buddha, that Buddha is represented to have foretold the coming glory of Pātaliputra, that Ajātaśatru moved his capital to this point, thus bringing it to a place more central, if Kosala be added to Magadha, than Rājagriha was, and on the whole I am inclined to believe that, from the overthrow of Virudhaka, Kosala was merged in Magadha and that the latter probably included all the country which had fallen under the influence of Buddhism.

Researches hitherto made have not unearthed any monuments at Srāvasti distinctly referable to the age of Asoka, but Hwen Thsang's narrative would lead us to refer the stone pillars at the east of the Jetavana (not yet found by the way) to this king. It is highly probable that he did erect *some* monuments, if not these pillars at Srāvasti, for it can scarcely be conceived that he should leave a place so intimately connected with the Great Teacher's career without some mark of his zealous attachment to the Dharma.

The dominance of the Magadha kings would seem to have continued down to the period of the Brahmanist revival, which happened under some Vikramāditya, possibly him who laid out the city of Ajodhya, but it would be foolish for me to hazard any date for this event. With General Cunningham this Vikramāditya of Ujjain is Chandra Gupta Vikramaditya whom he places as founder of the Gupta era in 166 A. D. But, I think, I may well give some value to the traditions which ascribe the restoration, the foundation, of the present 'Ajudhiya' to that Vikramāditya, whose era is current in Upper India, 57 B. C. Hwen Thsang mentions a Vikramāditya who was king of Srāvasti about half way between his time and the death of Buddha. Taking Hwen Thsang's visit at 635 A. D. and Buddha's death at 477 B. C., this would give us 79 A. D. But <sup>\*</sup>taking the known date of Hwen Thsang's birth 603 A. D. and Buddha's age at 80 years, we get 20 A. D. Now, allowing for the Chinese antedating Buddha's birth and death, we should get well back to the Vikramāditya whose era is current in the North West and Oudh. I am inclined to believe that it was to him that Hwen Thsang referred as the sovereign of Srāvasti.

There are two kings, an uncle, named Khiradhar, and his nephew, mentioned as kings of Srāvasti between 275 and 319 A. D. in the Singhalese records, but they cannot have been possessed of any influence for they have left no monuments and they are wholly unknown to local tradition.

I now pass over the visits of the Chinese pilgrims to Srāvasti: Fa Hian in 410 A. D., and Hwen Thsang in some year between 629 and 645 A. D., for the records of their pilgrimages are in the hands of all. I need only notice that, when Hwen Thsang visited Kanauj, the king of that place was Harsha Varddhana and his dominions probably included Uttara Kosala.

In the *Dasa Kumāra Charitam*, a Sanskrit work reasonably assigned to the 6th century A. D., we find Srāvasti mentioned, and it is said to have been the residence of a king named Dharmā Varddhana. The work is a romance, but it probably contains accurate accounts of places known to the author. It is not improbable that Dharmā Varddhana was a viceroy of the Kanauj sovereign at stationed Srāvasti, and that the kings of Kanauj had extended their supremacy thus far east at this period.

Professor Weber gives a summary of the contents of the *Dasa Kumāra Charitam* in *Indische Streifen*, Vol. I, pp. 308-351, and I shall here give the portion referring to Srāvasti, as I wish to omit no reference to the city which I can anywhere find. The book is a narrative of the travels of the son of the king of Magadha and nine friends of his, who travel separately and afterwards meet and narrate their adventures. It is Pramati who visited Srāvasti.

After his separation from his companions, Pramati had come to the Vindhya forest, lain down under a tree, committed himself in a pious prayer to the care of the goddess of the tree, and fallen asleep. In a dream he felt himself lifted up and, opening his eyes, saw himself in a magic hall, resting beside a sleeping maiden of marvellous beauty, on whom the moon was shedding her rays. Through fear of awaking her he does not venture to touch her, and noticing her move he feigns to lie asleep. She actually wakes up, gazes in astonishment on the companion of her couch, but soon sinks back again into sleep. He too falls asleep. In the morning when he wakes he finds himself shivering with cold under the tree in the forest. While he is still thinking over what he had seen, a female in celestial guise appears, who embraces him warmly and solves the riddle for him. It is his own mother, Tārāvali, the daughter of the Yaksha king Manibhadra, who had left his father, Kāmapāla, in a hasty passion on some slight provocation, and become possessed by an evil spirit for a year by way of punishment. The time was now up and she was on the point of returning to her husband. But she had

resolved before doing so to attend the festival of 'Tryambaka in Srāvasti. On the previous evening she had, when passing along, heard Pramati's prayer, and, to protect him from the inclemency of the night, until she returned from the festival, she had taken him away in sleep to the slumbering Navamālikā, daughter of Dharma Varddhana, king of Srāvasti. On returning from the festal ceremonies, where her spirit was wholly purified from the curse, she had recognized him as her own son and had seen how he, as well as the maiden, had been abashed when they found themselves lying side by side. She had again caused him to sink into real sleep and brought him back to this spot, and was compelled, while hastening to his father, to leave him for the present to his own devices and to fate. She vanishes after an affectionate farewell. But Pramati, who is overcome with love, wends his way towards Srāvasti. On his way he wins, as a spectator at a cock-fight, the friendship of an old Brahman, who lodges him for the night. On the next morning Pramati arrives at Srāvasti, and, being tired with walking, he lays himself down to rest in the shade of the pleasure-garden outside the city. Here a waiting woman comes up to him with a picture in her hand, which she compares with him. Navamālikā has painted the picture of the youth whom she had seen in her dream and sent out her waiting-woman to find the original. Pramati proves himself to be the person wanted by drawing the picture of the princess and narrating the occurrence of the night. He sends the woman back with the message that he would soon come to the princess, and he now turns to the old Brahman with the plan he had laid to effect this. The Brahman brings him dressed up as his daughter to the king, and asks him to keep her, saying he was going to fetch his son-in-law, and he knew no other way to keep the maiden safe as she was full grown, especially as her mother was dead. The king accepts the charge and makes the maiden over to his daughter as a playmate. After a month, when the ladies of the seraglio make a bathing excursion, Pramati dives and passes to an appointed spot on the other side of the river, where the old man is waiting for him with male attire. The female guise is now discarded and the old Brahman goes to the king with Pramati as his intended son-in-law to demand his daughter. The harem meanwhile is in great commotion on account of her being drowned. The princess is beside herself and the king is in a most unhappy fix before the old man, who is about to burn himself in front of the king's palace, when the king succeeds in overcoming his resolution by giving him his own daughter in lieu of the lost maiden in marriage to the intended son-in-law, and he also hands over the kingdom to the young adventurer. Thus Pramati gains all his desires.

The only points to be noted in this passage with reference to exploration at Set Mahet are that there was at the time of this composition a pleasure-garden outside the city, and that the harem of the local governor went out, after the fashion of Hindu women in the present day, to bathe on festivals. Whatever the position of the palace may have been in Mahet, the river seems to me to have run at one time close up to the east wall, and in the ruins of that wall I can trace chambers not yet explored, and probably this wall was laid out as a bathing ghât along the river bank. This would be the place where the ladies went to bathe and from which Pramati took his dive to the other bank of the Rapti. With these remarks I dismiss the story for the present. A less detailed abstract of the *Dasakumâra Charitam* will be found in Vol. III of Wilson's *Essays*.

There is a blank of about four hundred years from Hwen Thsang's visit until we reach the period where reliable history begins in India, the early Muhammadan invasions, and we must discuss the fatal advance of Sâlar Mas'ûd into the country north of the Ghâgra. The generally current account of this event is that given in an Urdu book called '*Mirâ't-i- Mas'ûdi*,' but this is only a debased translation or rather amplified paraphrase in Urdu of the Persian work *Saulat-i-Mas'ûdi*, and is very inaccurate. I possess a copy of the Persian work, written in an age when careful transcription was the means of preserving historical records, and I have translated a large portion of the book, and intend to complete and annotate it for publication, when I shall have sufficient leisure. There is also a popular ballad-record of all events of the invasion of Sâlar Mas'ûd which I have only heard from the lips of daffâlis who sing this '*Jangnâma*,' as they call it. I have been unable to complete the ballad by bringing together all the cantos, but I have obtained by dictation the version given of the events connected with the fatal trans-Ghâgra episode. The whole may yet be recovered. It seems to have been composed by a Lalla named Nathmal of Delhi; and there was a complete copy in manuscript until recently with a daffâli near Set Mahet, but it was unfortunately burned,

The '*Saulat-i-Mas'ûdi*,' states that Sâlar Mas'ûd was at Misrikh with his father Sâlar Sâhu when Saif-uddin, who had an advanced post at Bahraich, sent in word that the Hindu chiefs were rising, and he asked for reinforcements. Sâlar Mas'ûd was at his own request permitted by his father to proceed to Bahraich (17 Shâbân 423 A. H.). Two months later Sâlar Sâhu died at Misrikh, and for two or three months more Sâlar Mas'ûd remained in mourning and inactive. He then called a council of war in the opening of the new year, Muharram 424 A. H., and about the same time he saw in a dream his father and his mother,

Satr Ma'allá, encamped on a river bank, and he seemed to go to join them, and his mother held out a chaplet and said she had his wedding feast laid. This was a presage of his coming end. Next day he received an ultimatum from the Hindu chieftains demanding that he should quit their land. The chiefs who are enumerated in this connection are Rae Rúét, Rae Sáét, Arjun, Bhíkan, Kanak, Kalyán, Nagaru, Sagaru, Karan, Bírbal, Ajaipál, Sripál, Harpál, Harakhu, Narakhu, Rajudhári, Deonarayan, and Barsingh. Sálár Mas'úd of course ignored this demand. The chieftains formed a combined camp on the banks of the Kuthila. He moved up and defeated them and, after a halt of a week on the field, he returned to Bahraich. It was now that he gave instructions for the laying out of a garden at the Surajkund and fixed on it as his burial-place. He expected death in battle.

A messenger from Rai Jogi Dás of Jumla and one from Rai Gobind Dás came now and tendered submission for their masters. They were received with courtesy and others followed suit. The defeated chiefs, who wished to prolong the campaign, summoned all the aid they could and now Rai Suhar Deo from Sunjauli and Rai Bahar Deo from Sambalauta appear prominent as the organizers and leaders in the struggle which followed. The chieftains of both plain and hills came together again on the Kuthila. They once more advised Sálár Mas'úd to withdraw. He rejected the advice and determined to attack them again. At this juncture he received news that the enemy had driven off all the cattle of his camp, and he at once sounded an advance. The Hindus suffered a defeat, but one-third of the Moslem force perished. Sálár Mas'úd returned again to Bahraich and was lost in religious meditation, much to the alarm of his officers. Meanwhile the Hindus mustered their forces and advanced against Bahraich. Their first engagement was with an advanced post about four miles from Bahraich, but the dire fight was at the Surajkund. The engagement lasted for three days. By the third day, the 14th Rajjab 424 A. H., the ranks of both Hindu and Moslem had been thinned to decimation, and now Sálár Mas'úd with a handful of the faithful faced Rai Suhar Deo and Rai Bahar Deo, who had like him held themselves in reserve. Mas'úd was killed and not a Moslem remained alive but was wounded. Next day Mir Saiyad Ibrahim, who had been left at Bahraich, came out with his reserve, buried Saiyad Mas'úd and others, and then fell upon Suhar Deo. The leaders fell dead at each other's hands. The inscription on Mas'úd's tomb at Bahraich may be rendered:

The Chief Sálár Mas'úd to God was dear:

In 405 he saw the light of day:

He lived four days into his twentieth year

And in 424<sup>†</sup> he passed away.

He was born on 9th Rajjab 405 A. H. and died on 13th Rajjab 424 A. H.

So much for the history: now for the ballad. I give it in English ballad metre, and I have carefully retained the vulgar corruption of the Persian names. I have only to premise that in the ballad allusion is made to the popular belief that Sálár Mas'úd's mother had arranged for his marriage with a maiden at Rudauli, in the Faizabad District, when the news of the cattle raid came and Sálár Mas'úd started to avenge the insult and perished on his expedition. No other comment is needed, but I give footnotes where necessary.

I.

1.

Crowds were moving through the city,

Wedding guests in garments gay:

Bibi Mámúl\* sent for *mehndi*:

And 'twas brought upon a tray.

Gájan's† hands she coloured with it,

On his neck a garland bound,

While to all the guests assembled

Betel leaf was handed round.

2.

And she sprinkled *atar* on the

Saiyads of the Prophet's race,

And she summoned Khwájá Nádir,

Set him in the middle place.

How the squibs and rockets crackled,

Scent of aloe-wood arose,

How the blue stars burst and faded,

Nathmal Lall‡ the story knows.

3.

Saiyad Rána§ came with *mehndi*

And the garden|| went before.

How bright it bloomed!—An elephant

On his back a handah bore.

\* This is Satr Ma'alla, Sálár Mas'úd's mother.

† This is Gházi Mían, Saiyad Sálár Mas'úd.

‡ The poet here introduces his own name.

§ The Saiyad of Rudauli to whose daughter it is supposed Sálár Mas'úd was to have been married.

|| This means the artificial flowers made up and carried in the marriage procession. They are scrambled for when the procession reaches the bride's door.

Came the maiden in a litter,  
 Borne along in bridal state;  
 Saiyad Rāna's train pressed onward  
 And the *mehndi* reached the gate.

## 4.

Bibi Māmúl's love waxed stronger  
 When she heard they thronged the way,  
 And her maidens all uprising  
 Broke into this nuptial lay:  
 'Spread ye now the sandal *chauki*,  
 'On it now the bridegroom seat:  
 'Dye ye well his hands with *mehndi*:  
 'Give him gilded *pān* to eat.'

## 5.

Māmúl scattered gold and silver,  
 And she seated Gájan bold:  
 On his wrist he wore a bracelet,  
 Pearls inlaid in purest gold.  
 In his hand he held a dagger  
 While she spread the *mehndi's* hue:  
 Then with rice she decked the pitcher,  
 Finishing maternal due.

## II.

The Gwallas danced to mark the day  
 In forest wild with mirth;  
 The townsfolk came their joy to share,  
 And Indra stooped to earth.  
 A Sunday for those rites was fixed,  
 Which never were to be,  
 A day for war, not nuptials, marked  
 By Allah's firm decree.

## III.

## 1.

On guile the raja Rudal Mal\*  
 Was bent and now he rose,  
 And swore a lie. No king hath fear  
 No bond in oath who knows.

\* One of Suhil Deo's brothers. There were five brothers. Suhil Deo (*alias* Suhar Dal), Rudal Mal (*aliter* Rudr Mal), Bég Mal, Bahar Mal, and Sahar Mal.

'Pírbála's\* marriage feast to-day  
 'They keep with banquet high :  
 'So I shall seize on Gaura Got  
 'And on my gods rely.'

## 2.

Then uprose Rája Suhil Dal ;  
 'My brother king,' quoth he,  
 'To arms we'll call our armies all  
 'And I shall go with thee,  
 'The Gwallas kill and Sálár's kine  
 'Our booty be to-day.'  
 A wanton king was Suhil Dal  
 And would not brook delay.

## IV.

## 1.

The Gwalla clan at Gaura Got,  
 They were seven hundred strong :  
 Nand Mahar† was their sturdy chief :  
 His retinue was long.  
 To him the raja Suhil Dal  
 For tribute sent request ;  
 Of curds and milk on Mahar Nand  
 He laid a strong behest.

## 2.

When thus the raja Suhil Dal  
 Demanded milk and curds,  
 Nand Mahar heard but heeded not  
 The raja's haughty words :  
 'Gájan my master is,' said he,  
 'Whom fealty I owe :  
 'And to his wedding feast to-day  
 'My milk and curds shall go.'

## 3.

The raja heard but gave no thought  
 To what Nand Mahar said :  
 He drew his army out in line  
 And Bág Mal went ahead.

\* Sálár Mas'úd.

† His name still lives as eponym of a place 12 miles north of Set Mahet.



He went and fell on Gaura Got\*  
Where dwelt the bold Ahir,  
And thus that wanton raja seized  
The cattle of the *Pír*.

## 4.

Nand Mahar rose in mighty wrath,  
His retinue was long :  
He called the Gwalla clan to rise ;  
They were seven hundred strong :  
'Hear me my Gwáls,' said he, 'be brave  
'And to your salt be true.  
Be up and bear in mind to-day  
'The Mián's claims on you.'

## 5.

The Gwallas rushed to battle all  
With axes and with bows :  
Where'er they saw the stoutest foe  
They dealt their boldest blows.  
The sturdy Gwallas fought like men  
While Mahar cheered the fray,  
And he for one remembered well  
The Mián's claims that day.

## 6.

Among them all was Harbans Lall,  
The bravest of their band :  
A double sword was in his belt,  
A rocket in his hand.  
Like thunderbolt he forward leaped  
Into the thickest fight :  
He drew his sword and brandished it  
Around him left and right.

## 7.

Then trembled warriors of the field  
And back they stood appalled :  
Matchless he was and fought alone ;  
On Gájan's name he called.

\* There are many places known as Gauria this and that, but there is a Gauradih in the south of Gonda District.

The wounded fell upon the ground  
 And corpses headless rolled :  
 He slaughtered chiefs and warriors,  
 And bravest cheeks grew cold.

## 8.

Then quailed the raja Suhil Dal ;  
 He left the cows and fled :  
 But many of that Gwalla clan  
 That erst were few, were dead.  
 Then Rájá Bahar Mal reviled  
 His brother Suhar :\* ' Shame !  
 ' To turn thy back on Nand and bring  
 ' A stain upon our name ' !

## V.

## 1.

The Gwallas to Nand Mahar cried :  
 ' Come, now the wine cup drain.'  
 ' This is no time for wine,' said he,  
 But 'gainst them strove in vain.  
 By clamour led, seven hundred cups  
 Their chief before them laid :  
 They drank full deep and sank in sleep  
 In the cool forest shade.

## 2.

And now the raja Suhil Dal  
 A priestly pandit sought :  
 And horses five and garments five,  
 And weapons five were brought,  
 ' Pandit,' the Rájá said, ' these gifts  
 ' To Mahar Nand present :'  
 The Brahman hied to Gaura Got  
 Upon this message bent.

## 3.

He went among the Gwallas all  
 And straight the gifts he showed :  
 ' Ho ! Mahar Nand !' a Gwalla said,  
 ' What do these presents bode ?'

\* This form occurs here for the commoner Suhel, Suhil or Suhal. The real name seems to have been Suhirda (Sans : Su-hrida=Goodheart.)

'They are,' Nand answered, 'merely gifts  
 'From Suhil Dal to me,  
 'These horses five, and garments five  
 'And weapons five I see.'

## 4.

'But are these gifts,' the Gwalla asked,  
 'For thee or for the clan?'  
 To all his tribe Nand Mahar spoke :  
 'Go, let him mount who can.'  
 Five drunken herdsmen reeling rose  
 And killed those noble nags,  
 Those weapons five they broke in twain,  
 And rent the robes in rags.

## 5.

The pandit saw this woeful spite  
 And out Nand Mahar spake :  
 'Go Maharáj! to Suhil Dal,  
 'And back this message take :  
 "'The Kunwr Kandhaiya is my son,  
 "'Thy child Singhásan fair :  
 "'The *tilak* send full soon or I  
 "'Nor thee nor thine, will spare.'"

## 6.

'All will I tell,' the priest replied :  
 His face he homeward set :  
 No haste made he; he halted at  
 Each staging post he met.  
 Arrived—the raja asked him how  
 At Gaura Got he fared :  
 He bent his head and omens sought  
 And auspices compared.

## 7.

Then Raja Bág Mal bade him speak :  
 'Say is the omen fair :'  
 The pandit spread his tables out  
 The tokens to declare.  
 'Hear, Suhil Dal,' he quick replied,  
 'The auspices are bright :  
 'The Gwalks all are lying drunk.  
 'Rise, Suhil Dal, and fight.'

A ruthless king was he and called  
His forces to the fray :  
He Raja Bág Mal sent ahead,  
And there was no delay.  
He summoned all his men to arms  
And rájas great of note :  
He placed his guns in front and led  
His hosts to Gaura Got.

He fell a thunderbolt upon  
The herds in drunken drowse ;  
A futile fight they fought and fell :  
He swept off all the cows.  
Their bodies on the field exposed  
A feast for vultures lie :  
Like garnered sheaves their corpses fall,  
And floods of blood run high.

## 10.

The king thus slew the sleeping Gwáls,  
And captive Mahar made,  
And with him on his elephant  
His captive ride he bade :  
Thus with the Gwalla Chief he rode  
And there was no delay.  
But Mahar Nand uprore and said :  
'Hear, Raja, what I say :

## 11.

'Whoe'er shall see me ride with thee,  
'Without a shade of doubt  
'Will say this day that I am king  
'And thou art my *mahaut*.'  
The Rája roused, a dagger plunged  
Into the chieftain's breast :  
Then onward with the cows alone  
Towards his fort he pressed.

## VI.

## 1.

‘Jáso, bring curds,’ Mámúla said,  
 ‘For lucky is my star’:  
 Nand Mahar’s wife she was, replied  
 ‘Long live our lord Sálár’!  
 The women of her clan she called:  
 Each head a milk pail bore,  
 And round her form from waist to head  
 One sheet each milkmaid wore.

## 2.

When Jáso drew near Gaura Got  
 And kites and vultures saw,  
 And felt the stillness in the air,  
 Her soul was filled with awe.  
 Corpse upon corpse she saw the dead;  
 With grief she cried aloud:  
 The robe she wore in twain she tore  
 And made a mourner’s shroud.

## 3.

She searched in vain among the slain;  
 Her Nand not here she found,  
 But on she strayed and saw him laid  
 Alone upon the ground:  
 ‘O Mahar Nand, my sun and moon!’  
 She cried, ‘O husband mine!’  
 ‘Who thus hath killed our Gwallas all  
 ‘And driven away our kine?’

## 4.

She gently raised Nand Mahar’s head  
 And laid it on her knee,  
 While of his Jáso’s tenderness  
 Thus heedless answered he:  
 ‘O unclean! what art thou? vulture,  
 ‘Tiger, jackal, art thou?  
 ‘Wilt not wait my parting spirit  
 ‘But gnawest at me now.’

## 5.

'Tiger, jackal none,' said Jásó,  
 'Vulture or kite is nigh :  
 'She for whom thy flowers were looted,\*  
 'Thy boyhood's wife am I :  
 'Swámi, I am come to tend thee'—  
 'O Wife,' he answered low,  
 'Be thou my wife of early life,  
 'Prithce for water go.'

## 6.

'My lord, I will,' quoth she, 'but say  
 'Who killed and why our band :  
 'Did our cows eat the rája's crops  
 'Or trespass on his land ?'  
 'Our cows,' said he, 'nor ate his crop  
 'Nor trespassed on his land :  
 'This ruthless raid and massacre  
 'He worked with want on hand.'

## 7.

A tank she sought and raised her hands :  
 'Pir *khwájah* ! hear me pray ;  
 'If in my cloth the water stay  
 'My husband's debt I'll pay.'  
 While thus she prayed the water stayed  
 Within her apron pent :  
 She had the Sálár Gházi's *pír*  
 Addressed and back she went.

## 8.

The draught she brought to Mahar's lips  
 And sped his parting breath :  
 Then to her maids : 'Your vestments steep  
 'In this red flood of death :  
 'Your pails seven hundred fill with blood  
 'And backward with me turn'  
 The while she speaks her heart and cheeks  
 With hot resentment burn.

\* Part of the marriage ceremony.

## 9.

And to the Mián Jásó came,  
 Her crimson plaint she spread :  
 ' To thee I look : our cows are gone,  
 ' A hundred thousand head.'  
 The words she said like arrows sped  
 And kindled Gájan's pride :  
 He washed the *menhdi* from his hands,  
 His bracelets flung aside.

## 10.

His sword he grasped and kissed the blade  
 And straight his mother sought :  
 ' O hear me, mother mine,' he said,  
 ' Great wrong the king hath wrought,  
 ' He hath our kine as plunder seized  
 ' And all our Gwallas killed :  
 ' Jásó hath come to me : the air  
 ' With cries for blood is filled.

## 11.

' O hearken, Saifu'd-din,\* the tale  
 ' To me hath Jásó told ;  
 ' Who kills my Gwáls and steals my kine,  
 ' A traitor king I hold.'  
 ' O son, !' ('tis now his mother speaks)  
 ' Thy wedding feast is laid :  
 ' Gájan, thou treasure of my heart,  
 ' What new resolve is made ?'

## 12.

' There reigns but one desire supreme  
 ' Within thy mother's heart,  
 ' That see she may thy wedding day  
 ' And in it bear a part :  
 ' I would thy nuptials celebrate  
 ' And welcome home thy bride :  
 ' Might I but gratify this wish,  
 ' I have no wish beside.'

\* The officer mentioned is Saulat i Mas'udi as deputed to command at Bahraich

## 13.

‘Nay, mother mine, but bid me go,’  
 Bold Gájan quick replied,  
 ‘And I shall fight the traitor king ;  
 ‘The Prophet’s on our side :  
 ‘Say *Bakhshú-dulh*\* and I shall go  
 ‘The Moslem faith to spread,  
 ‘Bring back the kine, and with my sword  
 ‘Cut off the rája’s head.

## 14.

‘Or I shall fight and victor be  
 ‘And come to wed this maid,  
 ‘Or I shall fall and on my grave  
 ‘My wedding wreath be laid.  
 ‘For what should all my kinsmen say  
 ‘If I disgraced our name :  
 Nay, with this king I swords will cross,  
 ‘And turn his pride to shame.’

## 15.

Then Chishtí† rose to interpose,  
 But Gájan’s way was won :  
 His mother said : ‘God go with thee ;  
 ‘*Dudh-bakhshá* ; go my son.’  
 So now for Ajab‡ Gájan sent  
 And asked for ink and pen :  
 He cleared accounts up to the day  
 And paid up all his men.

## 16.

He bid them gird them for the fight :  
 His armoury they sought,  
 And arms of every kind they took  
 And rockets out they brought.  
 His mother heard the order given  
 And ran with naked feet,  
 And clasped her arms around his neck  
 His filial love to entreat :

\* An idiom, a form of speech equivalent to : ‘prove yourself worthy of your mother whose milk nourished you.’

† Also Chifti.

‡ Mian Ajab Hatila, who is buried near Wazirgunj.



## 17.

‘O son, on this thy wedding day,  
 ‘Haste not to leave my side :  
 ‘A maid with locks as dark as night  
 ‘I bring thee for thy bride :  
 ‘The noble Saiyads all are here,  
 ‘Thy wedding guests are they,  
 ‘And maidens singing bridal songs,  
 ‘They sing for thee to day.’

## 18.

‘Nay, mother, nay’ he said, ‘there waits  
 ‘A martyr’s death for me :  
 ‘A mausoleum and a mosque  
 ‘My monument shall be.  
 ‘I shall be laid in Hind to rest  
 ‘But still my fame shall grow,  
 ‘And all the four worlds hither come  
 Their tribute to bestow.

## 19.

‘Saddle and mail on Lilla\* bind  
 ‘My charger mount will I :  
 ‘My double quiver strap in front :  
 ‘Two wardrums on her tie.’  
 He said and went his blood to prove,  
 True crescentader he,  
 With force so great that earth did quake  
 His moving hosts to see.

## 20.

All this the rája Suhil hears  
 And he is sore afraid :  
 The Mián’s army ready is  
 And no delay is made.  
 On flags and banners waving went  
 And crossed the Ghágra’s tide :  
 The Mián to the Ka’bah prayed  
 For blessings on his side.

\* The name of Salar Mas’ud’s charger.

## 21.

All green the garments were he wore  
 From Kábul or Qandhár :  
 One lakh and thousands thirty-six  
 Of Saiyads went to war.  
 Their tents went first, their cannons next,  
 And elephants in rear :  
 Full many days they marched ; at last  
 They drew to Hind Mulk near.

## 22.

The Gabar\* king the tidings hears  
 How Gájan's tents are near,  
 How flags and banners court the breeze  
 And lines of shops appear :  
 A sight is his Urdu bázár :†  
 The people come and go,  
 And sweets are piled and bakers squat  
 And at their ovens blow.

## 23.

Vendors of grain and spices here  
 And money changers sit,  
 And on the sutler's hostel hearth‡  
 The cheery fire is lit :  
 Greengrocers vegetables bring  
 Upon the ground to spread :  
 The goldsmiths' deftly work with gold  
 And pearls for earrings thread.

## 24.

And *guriyas*§ from river beds  
 Have gourds and melons brought,  
 And *dhimars*§ offer fish for sale  
 In running rivers caught :  
 And who's kotwál to hear complaints ?  
 'Tis Nirmal Parihár.  
 Thus well arranged and busy is  
 Gájans Urdu bázár.

\* Applied to Suhil deo as a non-Mussulman.

† I. e., camp market.

‡ Bhatíári.

§ Two classes of *kahárs*.

## VII.

## 1.

When this the Gabar king had heard,  
 His queen Nauráni said :  
 ' O Sire ! against thy fort his hosts  
 ' Hath Mián Gájan led.  
 ' The army of the ' Dín ' has come  
 ' To lay thy fortress low :  
 ' O king, they will thy soldiers kill  
 ' And streams of blood will flow.'

## 2.

' Mad art thou, woman,' said the king,  
 And mighty wroth grew he,  
 ' For him good grace is second place :  
 ' Why name the Turk\* to me ?  
 ' For I can boast an equal host,  
 ' Be still and wait the strife.'  
 'Twas thus the king with anger rude  
 Stroved to put down his wife.

## 3.

Again Nauráni spoke : ' O Sire !  
 ' To fight this Saiyad dread  
 ' Who takes the field, a stoutest shield  
 ' Must hold above his head :  
 ' Through bone he cleaveth clean, and what  
 ' Avails thy sword of thread ?  
 ' A foe we face who shows no graco  
 ' And dyes the earth in red.'

## 4.

But Bahar Mal had been forewarned  
 And hurried to prepare  
 The ancient fort of Teliyagarh†  
 And put it in repair.  
 The king now staked his spear, and viewed  
 Tho fort with heart elate :  
 He bade them tie his elephant  
 Beside his palace gate.

\* Used merely as term of contempt.

† This is probably Teliyakot near Kauria, a station on B. N. W. Railway. The

## 5.

And next he summoned his mahant  
 And usages explained :  
 The driver went at once to where  
 The elephant was chained ;  
 Saluted first the royal beast,  
 Rubbed ochre on his head,  
 Then a red housing bound with fringe  
 Upon his back he spread.

## 6.

To Bhairon then and Hanuman  
 And Narsingh he appealed,\*  
 And then of stout rhinoceros hide  
 He took a studded shield  
 With burnished boss, which fast across  
 His giant head he tied.  
 Then roared that elephant and shook  
 The walls on every side.

## 7.

Now, Lalla, with due caution speak :  
 Such elephant 'twould need  
 With driver bloated and obese,  
 Twelve villages to feed.  
 A sword he gave that elephant  
 Within his trunk to hold :  
 At which he grew intoxicate  
 With warlike fury bold.

## 8.

When sleep o'ercame the elephant—  
 Now hear the tale I tell—  
 Sháh Mardán bore him in a dream  
 Down to the gate of hell.  
 While here he stood, a scorching blast  
 Of flame upon him blew,  
 And upward to the golden gate  
 Of Paradise he flew.

poet has with very strained poetic license confounded or brought together widely distant places and probably he and the author of the *Saulat-i-Mas'ûdi* have compressed a campaign into one fight.

\* This points to Suhil Deo's being a Hindu, but see v.ii.

## 9.

Sarwar Rasul\* came to the gate :  
‘ My son, in heaven,’ said he,  
‘ Till thou with Gájan cast thy lot,  
Thy portion cannot be.’  
The dream was o’er that broke his rest,  
The elephant awoke :  
Nor longer tarried Night, for now  
The dawn of morning broke.

## 10.

The Raja Suhil Dal aroused  
For news despatched a scout,  
And Raja Rudal Mal advised  
Him lead his army out.  
The Raja rode his elephant,  
His army on he led :  
The war-drums beat to war in front  
And firm was every tread.

## 11.

Then Hindus clashed with Moslems, while  
Their king on Somnáth calls :  
The Moslems opened with grenades,  
Hindus with musket balls.  
And thus that battle fierce began  
While loud the war-drums beat :  
Those hosts were numberless and earth  
Vibrated ’neath their feet.

## 12.

The high born Rajputs fought, nor once  
Their faces turned away :  
Tora in turban, clad in red,  
Conspicuous were they.  
‘ God keep my name,’ the raja cried :  
The Rajputs heard him call ;  
The fight he led, his foes he slew,  
The foremost he of all.

\* Muhammad.

## 13.

Loud Gájan's war-drums beat ; he placed  
 In front each bravest man ;  
 The ' fátiha ' recited he  
 And Ajab led the van.  
 Hari Singh Náth the standard high  
 Amid the fight displayed :  
 He drew his sword, it flashed like fire,  
 Nine maunds his armour weighed.

## 14.

It was the doughty Hari Singh  
 Who struck with surest stroke :  
 He mowed the forces of the king  
 And Káfirs' noses broke.\*  
 How Rája Suhil Dal was grieved  
 This carnage sore to see :  
 His hands he raised to heaven  
 And wept—' oh ! woe is me ! '

## 15.

The Pír† fought on ; great tuskers fell ;  
 No fear was on his brow :  
 He hailed the handah-mounted king :  
 ' Cowstealer ! whither now ? '  
 Barahna raised his spear and charged  
 Like raging tempest blast ;  
 Hindu and Moslem made him way ;  
 The monarch breathed his last.

## 16.

To Ajab Mián Gájau called :  
 ' Set spurs to thy brown mare ;  
 ' On Bahar Mal with sword advance  
 ' And hold him in the rear.'  
 Mián himself his Lilla spurred,  
 To Allah he appealed,  
 His sword he drew and Bahar Mal  
 Rolled dead upon the field.

\* It is curious to find two Hindus fighting for Sálár Mas'úd.

† Sálár Mas'úd.

## 17.

Mián hailed Nirmal Parihár ;  
 Then from his quiver fall  
 He took a shaft, and drew his bow,  
 And picked off Sahar Mal.  
 By God's decree thus Gájan killed  
 Those kings who wisdom lacked :  
 He took possession of their fort,  
 Their palace razed and sacked.

## 18.

'Now by God's grace the day is thine,'  
 To Gájan Chishti said,  
 'And Somnáth\* it behoveth us  
 Beneath our feet to tread.'  
 He said and straight upon that fort  
 The Moslem flag was shown :  
 He tore that house of idols down  
 And smashed the gods of stone.

## 19.

Whate'er my fame as poet, 'tis  
 Through Lalla Ustád† won :  
 The story true he told, I tell,  
 And now my tale is done.  
 The Saiyad Mián Gájan now  
 For Saiyad Miran‡ called,  
 And in the middle of the fort  
 As governor installed.

## 20.

The Moslem force to Gaura Got  
 Marched from the field of strife :  
 God gave the word and Gájan brought  
 The Gwallas back to life.  
 Like sunlit waves the spear-heads gleamed  
 And drums were loud in mirth :  
 Ajab Hatila's spear had rest  
 Like sleeping snake in earth.

\* The great image of the third Jain patriarch, whose shrine stands in the west of Mahet near the Imliya Darwáza or Tamarind Gate.

† Nathmal Lall here introduces his teacher's name and attributes the knowledge of these facts (?) to him.

‡ This hero is buried in Mahet and his tomb is kept in repair by a family of Sains who have a Saqad from Shujá'-ud-Daulah.

## PART II.

*General Map.*

I now propose to exclude Set and Mahet from observation for the present, and to travel over the rest of the ground which occupied my attention in the cold weather, December 1884 to March 1885. I shall assume that the reader has read all part No. I of this note carefully and has taken in the main points of the notes left us by Fáh Hian Hwen Thsang. I shall also assume that the reader has consulted General Cunningham's notes on Set Mahet contained in Vols. I and XI of the reports of the Archæological Survey Department. I shall have occasion to refer to Rockhill's Life of Buddha, which is the most recent work on the subject of Buddhá's career. It contains many important notices of Srávasti and when I shall have need to make use of the book I shall quote it, noting that I do so, as I cannot expect the book to be in every one's hand.

In the ramparts and walls which surround Mahet I have found four well defined gates, W. X. Y. Z. That at W is the west of the gate fortified city, and is known locally as the Imliya Darwáza because of the tamarind tree which covers the mound on the right as we enter the gate. The walls rise abruptly as they approach the gate on each side, and form mounds on the summits of which are still seen the outline walls of brick watch towers. The gate was guarded by an external work, an apron-wall probably, inside which appear to have been quarters for soldiers. The central space was occupied by a building, which may have been a guard-room, or a monk's residence, or an octroi post; in fact it may have served all these purposes at various periods. Inside it I found more than 500 clay seals, almost all unbaked clay, bearing inscriptions. I sent some of them to the Secretary of the Provincial Museum, Lucknow, for inspection by a German scholar, who was at Lucknow in February 1885, but I have heard nothing of them yet. In the same place I found large round stones seemingly of uniform weight, probably 'paseris' of ancient date. I also found a fragment of a curious vessel of very hard pottery and covered with a green metallic glaze, which has gone to the Lucknow Museum. It is, to sketch from memory, something of the shape and size represented in drawing A at the end of this note. This I believe to have been part of a vessel used for the transport of some precious stuff, possibly mercury. The smallness of the orifice is remarkable and points to some such use. This external building, whatever it may have been, will be seen outlined (as far as it was fully explored) in the sheet marked 'Mahet West.'

The next gate X is in the south wall, and, on entering it, there was



a road which for a short distance followed a devious course to the west and then went up to the western Chank and Jain quarters. The gate was also in the south, and seems to have consisted of two arches in the wall. The traces of the centre pillar and of the side walls are still clearly marked. I have proved by excavation that there was a broad street which ran from the sacred Buddhist and royal quarters in the city down through this gate towards Ora Jhár. I have called it 'Broad Street' in the maps. The gate Z was a large opening and seems to have been the main entrance to the east of the city. It probably opened on a road leading towards the spot now marked by the village Dewaria. The name is from the Sanscrit *dvár* a gate, and here probably passed the road leading to this gate of the city. I shall now take up seriatim the various places which the records of the Chinese pilgrims and other authorities would induce us to look for outside Set (the Jetavana) and Mahet (the city).

Lying far east from the Jetavana we have to find the stupa and vihára which mark the spot where Tathagata (Buddha) defeated the heretics and acceded to Visákha's request. I believe this to be the ruins named Baghaha Bári. I opened the mound and found the lines of cells on the south, and in the middle there was a building such as would be occupied by a superior, or which might be a small lecture-hall or a chamber for objects of veneration. I was unable to continue my exploration to the whole mound for two reasons. There is a village pathway crosses the mound, and south-east of it there was a crop growing, which I could not disturb. The name is, I believe, a corruption of Bhagava vihára, the *vi*hára of Bhagava, a name applied to Buddha as a title of respect. The word '*bári*' a 'garden' or, as it is often pronounced in these parts, 'Bári' obviously the same as the Sanscrit and Pali *vi*hára, a pleasure-ground, a garden, a place of perambulation round a monastic building. In the *Bári* is probably Visákha's Purvaráma, as it lies east of the place. The pilgrim notes it was in strict dependence on the Sangha of the Jetavana). This points to its being a nunnery, for all essential parts of professed female followers of Buddha were in strict subordination to the nearest monastery.

To the south of this place is a large area very much raised, in which are brick ruins visible on the outskirts of the fields and in the earth inside them. I could not explore here as I should have had to remove the crops of some poor cultivator: but I satisfied myself that there are at least three large buildings buried here. The position of this area marks it out as the site of (1) the stupas which were raised where Buddha sat and checked Virudhaka, then leaving the city to go

against the Sákya, and (2) the stupa erected over the remains of the Sákya maidens. These two places are certain to have lain south of the stupa alluded to in the last para., and close to them was the great lake in which Virudhaka is said to have perished. "It is clear that Virudhaka, according to the Buddhist fable or history, whichever we call it, perished in a lake, an ornamental water, by a conflagration which burned up a boat or pavilion in which he was. That this tank was the Awen-dha Tál, I have no doubt. It still shows in places on its banks the traces of masonry probably of a ghát or embankments. The word may be a compound of Sanscrit *ava* and *indha* (burn), and thus afford internal demonstration of the propriety of this identification.

I may add that there is reason to suppose from the general tenor of Hwen Thsang's narrative that there was a palace near this tank, for we read of Virudhaka's sending the women of his palace down to the banks of the lake and his disporting himself with them there. One local tradition localizes the spot to which the maiden ascended, who invoked the Sun, as narrated at p. 21, and says she went to the top of Ora Jhár. This fits in with the belief that Ora Jhár was a kingly residence. Another tradition says that Ora Jhár was an armoury. It is not unlikely that when Prasenajit married Mallika, she being his junior queen, he may have placed her in a palace for her own special use, and this may have been that palace. Any how, the place cannot be what a popular derivation, based on the present form of the name, would imply; a spot where sweepings gathered in baskets were thrown out. The name Ora Jhár or Orha Jhár\* is applied to a high mound near Colonelganj in Gonda District, and to the Maniparbat at Ajudhia and to other places. It seems to me that it is probably a corruption of the Sanscrit *urdhwa* (high) *ádhára* (eminence), and it denotes merely a high place or lofty eminence, as either affording a commanding view or a site for a building. Altogether, I believe, that Ora Jhár will be found to have been a terraced palace, such as that on the terrace of which Virudhaka saw Jeta walking, when he ordered his death and probably it was here that Virudhaka's ladies of the seraglio were, when they went down to the ornamental water on the fatal day. There is no place that I know of to suit the story in Mahet.

Near Ora Jhár is a mound in which I found only 3 concentric rings of brick wall, two of which I explored. It is called Panahiya Jhár.† What this place can have been I was long puzzled to know, but it seemed to me to have been a ring intended for some amusement, with a gradu-

\* I have heard both the aspirated and unaspirated forms used.

† Explained from 'panhi' shoe to be the place where travellers shook dust off their feet before entering city!!

ally rising auditorium or gallery. This was curiously confirmed by reading in Weber's article already quoted, how Pramati made the Brahman's acquaintance at a cockfight outside Srāvasti. I now believe that this was a cockpit, and certainly it is well suited to such a sport. The location is probable, being near an ornamental water and garden and a royal residence. The name Panahiya is probably derived from the Sanscrit *Paṇa* a wager or gaming. The *Jhār* is the same as in Ora Jhār.

It is curious that the only case in which superstition interfered with my excavation was at Ora Jhār. When I had cleared the summit and was beginning to expose a series of chambers on the south side of the crest, the appearance of which was that of chambers on a terrace, it was a cold day after rain and a bitter wind was blowing. The gangman, who was a Brāhman, was seized with a shivering fit and he fell over crying that the gods had attacked him, and in his raving said that there were seven spirits inside the mound opposing him. He was so horrified and weak, that it became necessary to carry him to the grove where the labourers usually spent the night and he lay all night long reasoning with his gods and imaginary demons. I could not prevail on his gang to resume work then at Ora Jhār, and when I wished to return to the place later on, funds were too low to admit of it.

The pilgrims noted three deep tanks or ditches, where people fell living into hell. These are connected with Devadatta, Sundari, and Chansoha. They differ as to their relative positions. General Cunningham has announced the identification of these ditches or tanks, but he has misplaced them in his maps, and has said nothing as to the reasons of his identifications. The furthest south is Lambhuiha. This is probably derived from the Sanscrit root *lamb* (to sink or fall in), *bhumi* (earth), the place where 'earth sank.' North-by-east of this, at the exact distance noted by Hiwen Tshang, is Bhulinahwan Tāl. This is the second. The derivation is probably from the Sanscrit *bhū* (earth), + *līna* (disappeared or vanished). The third is the gulf which swallowed Devadatta.

The tank marked as this last by General Cunningham lies inside the enclosing walls of the monastic establishment round the large *stupa* east of and within the limits of Set. It cannot, therefore, be one of the three named by the pilgrims for they all lay outside the Jetavana. I am inclined to think it must be Kundaliwa or Parsahwa, for near each is a mound containing brick ruins, probably those of buildings commemorative of some such story. It is immaterial which we assume it to be. The building near Parsahwa I opened, but it seemed to be a facade of some kind raised over an older building. Kundaliwa might be a corruption of *kund*, a tank, but it is worth noting that *kunda* is also a

and the female who falsely charged Buddha with incontinence made in the semblance of pregnancy by tying a pot round her waist. It is also possible that Baitān may be one of the tanks in question, because the very name may obviously be a corruption of *baitāl*, a demon, the connection of which with the story of Devadatta is easily seen.

Of other places worth note I must mention Púrāina Tál. We may easily take this to be a corruption in Hindi of the Sanscrit Púrṇa, and, if we do, it can be fairly inferred that this tank is the spot associated with the suicide of Púrṇa Káśyapa mentioned at pages 8 and 9. On its south bank is a long mound which seems to contain brick-work, probably the remains of a memorial building.

To the north of this is Ambaha Tál, a large and deep tank, with a mound on three sides, and a thick clump of trees on the south. Near this I found in 1876 a portion of a stone pillar, cut in a hemi-hexagonal form, probably one of those stones referred to by Hiwen Thsang as marking particular places where various holy persons had been engaged in meditation. This then is the place where was the *wood of the recovered eyes*, and the very story still survives enshrined in the word *ambaha*. This is the Sanscrit *amba*, an eye, which is seen in the word *tryambaka*, triocular. I conclude that General Cunningham was wrong in looking to Gulariha as the site of this grove.

The mound of Barmdeo is not to be overlooked. Tradition says, it is the oldest spot round Sahet and Mahet. It will be worth opening, as we know that Brahmadata was Prasenajit's father, and the people round about say that this mound was a shine of Brahma.

Nor must I omit to notice Husen Jot with reference to which General Cunningham has made the following observations.\*

"To the north-west of the monastery Hiuen Tsiang places a well and a small stupa, which marked the spot where Maudgala-putra tried in vain to unloose the girdle of Śáriputra. As the distance is not mentioned, it may be inferred that the stupa was close by, and therefore, I would identify the site with that of the shrine of Pir-Barána in the small village of Husen Jot, which is within 700 feet of the north-west corner of the monastery. Near the same place there was also a stupa of Asoka and a stone pillar, which the king had raised to note the spot where Buddha and his right-hand disciple Śáriputra had taken exercise and explained the Law. I could find no trace of any of these monuments, and I conclude that the stupas, as usual, must have furnished materials for the erection of Pir-Barána's shrine."

\* *Archæological Survey of India, vol. I, p. 343.*

To this paragraph objection must be taken. There is no shrine of Pir-Barána at Set Mahet and there was no person named Barána. There was a Pír Barahna. He was Sikandra Diwána, a faqír, a follower of Sultán Ibráhím Adhám, and it was with the disciples of this Mussalman Saint a rule to abjure covering for the head and feet. A full account of them is given in the *Saulat-i-Mas'údí*. He accompanied Saiyad Sálár to Oudh, and the Saiyad expired in his arms. He was himself killed by a shower of arrows while supporting the Sálár's head in his lap. He was buried beside the young hero in Bahraich. There is no trace of any shrine at Husen Jot, and I have seen nothing to lead me to suspect a stupa in or near this hamlet. I am quite at a loss to see how the venerable archæologist can have come to pen so erroneous a paragraph as this. Further north there is a grove, a mound, and a well. On the mound is a shrine of Mahádev, called here Bannú Náth. The lingam is a red sandstone pillar over which, in the place where it was found standing, the shrine was, I am told, built. This may or may not be so, but this place seems to be that which the pilgrims refer to in the narrative which was before General Cunningham, when he took Husen Jot to be the place where stood the stupa, marking the spot where Maudgalaputra tried to unloose Sáriputra's girdle. As regards Husen Jot a note should be made. The Saiyad Míran, who was left by Sálár Mas'úd as kotwal of Set Mahet, and who is buried in Mahet inside the brick building called Míran ka dargáh and also 'Míran Asthán,' was Saiyad Mir Husen who came with Saiyad Sálár to Oudh. Husenjot is a hamlet where the descendants of the original Khádim of this Dargáh still live. They hold a m'áfi conferred by the Oudh Subáhdars, but greatly reduced in area by the Balrámpur Taluqdar, and they still maintain the Dargáh, and observe the annual 'feast of oblation' (urs) in Mír Husen's memory.

I must now return to the extreme east to the village of Kándh Bári. This is but a small hamlet, in which are seen at the surface of the ground the remains of massive brick walls. There are many wells in the hamlet, which is on an elevation, and close by are some five or more magnificent old trees, mangos and others. These are north-east of the village and south-east of the gate. When I first visited this place, I was amused by a reference made to one Gandhwa in connection with the name of this hamlet, and it was carried back to the time of Arjun and Hanuadhyaj. I took no note of it; but I have since read the paragraph\* in General Cunningham's second report on Srávasti, in which he attempts to connect the story of the Gardener Gandamba (*sic*) who

\* *Archæological Survey of India, vol. XI, p. 95.*

presented to Buddha a mango, the stone of which was planted and became a great tree, with Chakkar Bhandár. The word is not Gandamba, but is properly written Gandhamba, and is clearly a compound of Gandha + amra (or amba), the fragrant mango. The name of the village is thus a debased form of Gandhamba + vihára: the garden of 'Gandhamba' or the fragrant mango garden. Its location near two gates of the city mark it out as the probable spot to which the story should be attached. Buddha was going towards a gate of the city when the mango was presented. I shall deal with the name of Chakkar Bhandár later on.

There are two other mounds near Kándh Bári one N. W., the other N. E. of it. The latter I did not open. That on the N. W. I opened, and found the building of which an outline plan will be seen on Plate IV, and its location in Plate XIII. Here I found a late Hindu building, a shrine of Mahádeo, superimposed on earlier ruins which I had not time to fully explore. In the *argha* in the central building I found a shaft of a red sandstone pillar about 18 in. in diameter and some 4 feet in length, the upper half only being dressed and polished as a round pillar. It had clearly been originally the lower part of a massive pillar. The broken top was dressed off to a hemispherical shape. The *argha* was very brittle and of common grey-green sandstone. The walls seem to have been built round the pillar. I do not see how it could have been brought in after the completion of the building. The lower part of the shaft was cut in a polygon of which I do not remember the number of sides, and was not dressed or polished. It seems this pillar must have been the lower part of a memorial column found here, or near here, the broken top of which was subsequently dressed to hemispherical shape and used as a lingam. There were small modern lingams in two chambers on the west. I am inclined to look on this as the position of one of Ásoka's memorial pillars. Another I have already mentioned, the Banni Náth Mahádeo.

### PART III.

I have now to invite attention to the separate map of Set or Sahet. I have opened so many more mounds and buildings than General Cunningham, that I have been compelled to number anew. To prevent any confusion and to make clear my observations which will often conflict with General Cunningham's convictions, I shall in the following notes give, as far as I can, the numbers which he has allotted to buildings as well as the numbers allotted by me.

The building marked 1 by me is the same as that bearing that number in General Cunningham's map.\* Cunningham gives the dimensions

\* *Archæological Survey of India, vol. XI, Plate XXIV.*

of the platform of the mound with tolerable accuracy, 350 ft. sq., and the exact measurement of the enclosing wall of the building now exposed, nearest the surface of the mound, can be ascertained by scale appended to my map. But into this I need not go. I shall satisfy myself with pointing out that there has been a misconception as to the age and character of the building which crowns the mound.

Cunningham states that there were three platforms and "on the uppermost terrace, which was about 80 ft. square stood the temple with its doorway facing the east. The building consisted of two parts: a large hall, or assembly room, for reading the Buddhist Scriptures, and a smaller room, or cell, with a pedestal for the enshrined image."\* He then goes on to describe the cell and the assembly hall, as he calls them.

The first point I have to note is, that the cell, as it is termed, is quite a new building, in fact a modern addition to a modern building. This is apparent at a glance by observing that there are floral bricks thrust in here and there at random in the walls, having been clearly taken from the remains of an older building. In the next place the four pillars, as Cunningham calls them, small brick pedestals in the large room, are placed as *bedis* or Hindu altars, and raise the suspicion that this was a later Hindu building. I opened the floor and I found the pilasters of a larger building and four other *bedis* below. They extended to a depth of about 4 feet below and rose out of a concrete floor. On opening this concrete to dig deeper, I came upon the mouth of a well which had been closed up. I opened it and found it to be only an additional piece of masonry continuing the shaft of the original well, the platform of which was clearly marked by a line of upright bricks a few feet lower down. I cleared this well to water level, and found it had been choked with bricks, bones, and weapons. I found human skulls and bones, and the skull of a camel. One human skull still held an arrow head by which it had been pierced. Thus we have marked periods: (1) original well, (2) well repaired and added to and choked up with bones etc., after a fight, (3) the first building of which I found *bedis* and pilasters, (4) the building of which the remains were seen by General Cunningham. The surface of the floor of this latest building is 20 ft. 6 in. above water level.

To the west of this mound I opened trenches in a large level space adjoining, and I here found very old buildings deep buried under earth, ten to twelve feet below the surface and made of bricks of very large dimensions. I could discern chambers which seem to have surrounded a

\* *Archaeological Survey of India, vol. I, p. 83.*

square enclosure, which were probably among the oldest, if not part of the original, buildings. In these long buried ruins I found crystal markers for playing *pachisi*, also some of clay, and a curious glass plate about  $\frac{1}{2}$  inch thick perforated with five holes in the form of a quincunx. These old remains have not been mapped in yet, but are among the most interesting remains laid bare. One of the most curious relics found in them was a heap of charred rice, the form of each grain being preserved fresh as if of yesterday.

Buildings 2, 3, 4, 5, of my numbering, are not of any importance.

Building 6 was discovered by me deep under the earth and is unquestionably of great antiquity. I have exposed the enclosing walls. The bricks and the style of building point to antiquity, the former being large and massive and the mode of construction being by 'off-set' walls, that is, the bricks being set in a graduated form so as to widen out the wall like a staircase at the base. This was necessary to resist the action of the water in the low level of this ill-drained site. Most buildings found concealed at a great depth in Set are built thus. In the east wall of this building I found a fragment of a Buddhist railing. In the west side I found lying, apparently where it had fallen by accident, an ancient seal.

The building No. 7 is that which General Cunningham terms the Gandha Kutī. The name may be allowed to adhere, though in the present stage of our exploration we are not in a position to impose the name with a certainty of accuracy on any particular building. I must, however, here point again to the error into which General Cunningham falls in supposing that a large room with four low pillar shafts is necessarily 'a hall with the remnants of pillars to support a roof.' In this case I am almost sure the large chamber of what he calls the Gandha Kutī is a late Hindu addition. I have removed all the earth round the building as it now stands, and I have found that the square block or cell on the west is quite a separate building from the rest. Its base is built of off-set walls, as I have already described in the case of building No. 6, while the character of the architecture of the large middle chamber is wholly different and its style modern. In the small eastern part, which seems to have been a vestibule in later times, there are traces which indicate that it contained portions of an older construction.

I cleared all round the mound and I exposed several bases of pillars of two dimensions. They were of brick, the bricks being well curved and calculated to a nicety to suit the pillars for which they were intended. But all these pillars seemed to be of late date. On the south I noticed one base of a pillar of much larger dimensions on which a later



wall has been built. I then opened the small remnants of buildings, Nos. 9, 10, 11, and, on going to a great depth, I found that there were older walls running below, 8 to 13 feet under the surface, which clearly belonged to a wholly different and much older building. I now determined to open the Gandha Kuti and I cleared away the surface of the concrete external courtyard on the south, and I soon came on a very ancient wall running down in the form of a lower off-set brick slope, and forming a masonry terrace round the mound, on which stood the old chambers I have already described. It is of the same age and style. Further outside this I found the original enclosing wall, entire in its whole circuit. Under the modern vestibule I made a tunnel and I found the same class of old building below. I found only two objects of interest. They were not in the lower or more ancient building. One was a fragment of a pottery relief of Buddha standing and preaching. This was buried in the general ruin near the top of the mound. The other was an image in red sandstone, probably representing the scene in Buddha's life when a householder of Srāvastī sent his son to Buddha for reception into the brotherhood. At its base was inscribed the usual Buddhist formula 'Ye dhamma,' etc., in characters of about the 5th century A. D. This stone seems to me to be the fragment of a pillar on which this figure may have been carved originally, or after the fracture of the pillar. Any how, the stone slopes like a pillar, and the edges are dressed, and bear fragments of an old inscription in well executed Sanscrit characters of early date. These fragments of writing are, as the pillar stands, meaningless.

The numbers 12, 13, mark what General Cunningham has identified as the Kosamba Kuti. My attention was early marked by a line drawn to the four *bedis* in the part marked 13, and I thought, from what I had seen in Nos. 1 and 7, that it was not unlikely that this was a recent addition to 12. I opened the ground carefully all round to a depth of about 10 ft. and I found No. 12 resting on its original foundation and built in the same style as the older buildings elsewhere opened, with off-set bricks at the base. I opened a small passage and found clearly where this formation of wall terminated, 1 ft. 9 in. inside and below the corner of 13. I also found on the east side that 13 is not deep below the upper surface. Thus clearly the part 13 is not of great antiquity, and it is possible that, while the large statue found in 12 by General Cunningham may have been there from a very ancient date, the part 13 was added on by either Buddhists or Hindus, who found the statue thus surviving the desolation of the seventh century. It is not unusual to find Hindus worshipping any image they find, without inquiring whether it is Hindu or not. On the north side of this building and close to it, in

part adjoining it, I found two small circular blocks of masonry and one square one. The former may have been memorial marks, small pagodas such as Buddhists build close to large stupas and other sacred buildings. The square block was probably a monk's platform. On the east of 13 I found, several feet below the earth, remains of another offset-brick base, which is of undoubted antiquity, but I had not the funds to continue the excavation here.

Nos. 14, 15, 16, call for no note. No. 17 is a curious construction. It seems to have been a stupa but may have been a cell. I cleared the mound in which it was hid and opened it, but did not go below the surface of the earth around it.

The building by me marked 18, is that which General Cunningham describes as a stupa and marks 5. I found nothing in it, though I went several feet deeper than Cunningham had gone. I opened the building all round outside by a trench about 9 ft. deep, and I ran a trench 9 ft. deep from the middle of the building to the east and west taking the line of the octagonal wall. The trench on the east is not marked in the map as it gave no result. That on the west, *ffhh*, and others near it *ffgg*, and *jll*, yielded some results which I shall refer to presently. At the north-west corner of the enclosing wall, I found some very curious vessels, pottery, well-baked and massive. These were large hemispherical bowls. They were lying bottom up and some were 5 feet in diameter. There were some smaller. There were also ring-like pieces of pottery of similar dimensions. The only explanation I can give of these is, that they were used in making umbrella-like cupolas on the top of stupas, or by piling the hemispheres ~~on the cylinders~~ they may have been used in making small memorial pagodas. Earth would in the latter case have been filled in as the successive pieces were piled on one another.

Nos. 20, 21, 22, 23 stand on the southern elevation, where General Cunningham has marked 11 and 12. His No. 12 corresponds to my No. 20, and I did not do more than clear the upper surface of a part of it. The building 21 turned out to be so large and promising that I confined myself to it. The western wall of No. 21 runs on to meet No. 24, and a wall runs east from 24 which I did not fully expose. Hence it is not shown. Nos. 22 and 23 are adjuncts to 21 and have probably served some accessory purpose to the main building. No. 21 is 128 ft. by 118 ft. and the whole block is unquestionably one piece. I cleared the building all round, going down about 13 ft. on the south, the west, and the north. I did not go quite so deep at the east. The door was on the east. I found that this building had one characteristic offset brick base at the lowest part and was there constructed of very large bricks. There were

the clearest indications that this building had been twice rebuilt with extreme care exactly on the old foundation, before it was finally rebuilt at the latest date prior to falling into the decay in which I found it, the successive strata being clearly defined. I cleared the whole of the mound above and found the well shown in the map of Sahet or Set, and in one chamber I found a fragment of a red sandstone slab or pillar. I also found two fragments of well executed stone images—Vaishnavite—with small marginal figures of Buddha cut on them. These are referable obviously to a period when Buddha had been incorporated among the incarnations of Vishnu, the period of re-absorption of Buddhism into Hinduism. When I went to the floor of the next previous stage of building, which lay about 8 feet below the floor of the upper one, I found the large slab already referred to at page 3 bearing the long Sanscrit inscription. It had lain there un-disturbed, for many years, for the root of a gigantic gular tree had extended a distance of about 17 feet from the parent stem and grown out under the stone and several feet beyond it. This root was quite flat and bent at a right angle, showing it had grown under the slab.

There can be no doubt that 21 is one of the oldest and longest preserved buildings in Set, and should be wholly cleared and exposed.

The buildings 25, 26, 27, 28 call for no remark. They are not fully exposed. No. 29 is a small platform and will be referred to again.

No. 32 is a small building which I exposed. It was hidden in a mound and seems to have been a cell in which a monk may have dwelt, or possibly it was an image-shrine. The door faced the west. I think it was more likely a cell. There are in it what seem to me to be two raised masonry beds for monks, who may have lived here, but of this no one can be certain.

The most interesting building which I opened, was the stupa (No. 33) which I propose to identify as that of Sāriputta. I have completely exposed the outer walls of the stupa itself and those of the enclosing square. The hollow on the east in which water still lies, was, I found as I continued my exploration, originally a masonry tank. To the north-east of it, and possibly outside the enclosing lines of 33, was a very curious building No. 34 in which I found many clay heads, specimens of well-moulded and well-burnt pottery. What this place was I cannot say, owing to its very peculiar construction. Lying against the wall of one of the cells, cut by the trench *aabb*, I found a well executed brass east of an elephant's head, ears, shoulders, and forelegs.\* It is possible

\* See Plate XXV, c.

this was the figure which surmounted one of the pillars east of the Jetavana in the days of the Chinese pilgrims, one of whom says it was an elephant's head, while the other calls it an ox head. The pillars were, it would seem, 70 ft. high. The great elevation of the figure would amount for its being mistaken by one pilgrim for an ox head. It seems to have been built into the shaft of the pillar. The groove at the back points to its having been intended to be fastened into a wall or stone, so that one line of the groove should be hidden while the other should seem to be the base from which it rose.

The lines *aabb*, *ecdd*, *zz'*, *xy*, *xv*, *uv*, *ut* are all trenches which I dug to a great depth exposing walls and cells. There seems to have been a continuous line of building from *u* to *t*, and, when I stopped the trench at *t*, I found two curious square remnants of what may have been pillar-bases and portions of chambers (35).

I now return to the stupa (33). It seems to have been built here for a special reason close to the Jetavana, and I think I can point to the reason and identify it. On opening the cylindrical shaft in the middle of the stupa, I went to a depth of about 13 feet before I got anything. I then found a begging pot and alms bowl, black glazed pottery, built inside the shaft, and covered by a larger bowl inverted over them. I went several feet deeper, altogether about 25 feet down, and I found at the original base a large inverted bowl like that first found. I managed to lift it and what it covered without breaking the latter. The covering bowl had been cracked right across, probably in building it in. I opened the contents with care, and found a large soap-stone casket. Inside this casket was a dark green porcelain bowl containing the charred ashes and some charred bone-joints of a deceased monk.

We know that when Sudatta promised to build Buddha a vihāra, he asked him to nominate a disciple to design the building, and that Buddha sent Sāriputta with Sudatta to Srāvastī. Many years afterwards Sāriputta died at Nālanda. The disciples cremated him, but brought his ashes, alms bowl, and cloak to Buddha, who was at Rajagriha. Buddha brought the relics to Srāvastī. Sudatta induced the Master to give them to him, and he built a stupa over them. Buddha himself gave instructions for the building of this relic-tower, and directed that it should contain a vase.

The relics found in the stupa 33 correspond, being a porcelain bowl, or vase, holding the ashes, inside a relic casket, and an alms bowl and begging pot. The most natural place to locate the stupa was in close proximity to the entrance of the building which Sāriputta had designed, near the spot where he had been victorious in disputes with

rival sects, nay more, on a part of the very site which Sudatta had originally purchased.

Round the base of the stupa were several small pagodas or memorial pillars, some square and some circular. On the west of it was a well. This probably was to supply with water the mendicants who lived in the cells around the stupa.

No. 36 represents certain walls discovered just as operations were drawing to a close, which seem more like the outline of one side of a gateway than anything else I can think of; but it would be wrong to do more than hazard this guess, as the counterpart has not yet been found, nor indeed looked for.

The line *rs* represents a long trench in which I found, still in excellent preservation, the greater part of a drain, or waterduct, made of tiles, probably used for conveying water for irrigating the garden of the monastery. The lines *lm*, *no*, and *pq*, are the trenches which revealed a very old building 37.

The lines *gh*, and *jk*, are very deep trenches which enabled me to touch the walls which further excavations laid bare, now marked in the triangle *ghk*, but it is only shown in this—as in other instances—that there is great need for a full exploration.

The lines of trenches *jll*, *fgg*, and *fhh*, yielded more interesting discoveries: and here I believe I found the key to the whole excavation. As I stood one day looking at the octagonal well A, which stands in the middle of the present interior level of the whole ruins at Sahet, I reflected on General Cunningham's specious remarks in his second report on Srāvasti,\* where he takes the part of the upper portion of the well being octagonal, with a slight inward inclination of the sides at the top, to be a mark of *ingenuity on the part of the builders* of the well. I saw that the inward inclination seemed to be in some of the sides only, and not to bear the marks of design, but of accident, owing to age or pressure, and I further questioned the probability of a well-builder varying the shaft of his well, building circular below and octagonal above. It would be a source of weakness. I then noticed that where the circular shaft ended there were horizontal bricks and slabs, and I felt sure that the original well must have ceased here. I then laid out the trenches *ljj*, *fhh*, *fgg*, and, when I had gone to a depth near the well, I came across the base of the pillar at T. This is the remains of a magnificent pillar 13 ft. square at the base. When I had exposed it, I made a small hole horizontally at the level of its foundation into the earth near the well, and I found in a few minutes that I touch-

\* *Archæological Survey of India*, vol. XI, p. 93.

ed the masonry platform of the original mouth of the well, and that it had originally been only at the top of the circular part of the masonry. Clearly the octagonal part was an addition. Going on with my trenches I found U, V, to be circular bases in offset walls of buildings which had stood on the original level. W was a pillar similar to T, but of smaller dimensions. Here then I had touched the original level of the Jetavana, and here, in all probability, I had come across two of the memorial pillars, and possibly two of the smaller stupas referred to by the Chinese pilgrims. If this be so, the lowest level seen by General Cunningham was about 15 feet above the original ground of the Jetavana. This shows what has to be done before we shall be entitled to speculate on the identification of Gandha Kuti or Kosambha Kuti.

I have only now to refer to the trenches *ab*, *cd*, *de*. They have been cut to a depth in some parts of 20 feet and have revealed very old walls, but the result was little more than to give me an idea of the direction of the buildings. The long trench *cd*, showed at 31 the general outline of a wall which seemed to be the side of a long passage or hall, possibly the vestibule of a large building. No. 30 is a series of cells, but they rest on older cells, and in one place I found the remains of a staircase, as it seemed to me, leading to a lower chamber. In the earth which had closed up this staircase, I found a terra-cotta figure of a naked infant and two seals. I also found in one of the lower cells a large store of rice, which had been preserved from decomposition by close compression in the ruins. No. 29 is a masonry platform, seemingly a seat for monks at the back of the large building, of which 30 and 31 are parts. It is, however, part of a later building raised on the ruins of the older.

I have little left to say of the tangible memories of Set except to call attention to the very obvious reminiscence contained in the name of Chakkar Bhandár, the adjoining hamlet. It is clearly named from the chamber and the pillar surmounted by the wheel (*chakra*), which flanked one side of the east entrance of the Jetavana. The Chakkar is the wheel, and the Bhandár is the Sanscrit *bhāndāgara*, or storeroom, the chamber in which the commonwealth of the fraternity was stored. Chakkar Bhandár stands on ruins, lines of brick wall being clearly traceable in parts, and the hamlet should be explored with care and at the same time with due regard for the villagers' prejudices and home feelings. It is true that if Chakkar Bhandár be the actual site of the wheel-crowned pillar and adjoining storehouse, it will carry us further east for the main door than General Cunningham fancies it lay, but we must remember that the pillar was probably raised by Asoka, and that even in his lifetime the Jetavana must have grown far beyond the limit

of the small vihāra built originally for the Master. A description of the Jetavana as it was in its prime is to be found in the Thibetan authorities which state that it contained sixty large halls and sixty small ones. Buddha himself—say these authorities, attributing everything to Buddha, as they always do,—gave instructions for the decoration. "On the outside door you must have figured a yaksha holding a club in his hand: in the vestibule you must have represented a great miracle, the five divisions (of beings) of the circle of transmigration: in the courtyard, the series of births (Jātakas): on the door of Buddha's special apartment (lit. hall of perfumes, Gandhakuti), a yaksha holding a wreath in his hand; in the house of the attendants (or of honour), bhikshus and sthaviras arranging the dharmas; on the kitchen must be represented a yaksha holding food in his hand; on the door of the storehouse, a yaksha with an iron hook in his hands; on the water-house (well-house?), nāgas with variously ornamented vases in their hands; on the wash-house (or the steaming house), foul sprites, or the different hells; on the medicine house, the Tathāgata attending the sick; on the privy, all that is dreadful in a cemetery; on the door of the lodging house (? text effaced), a skeleton, bones, and a skull.\* What is mentioned as the wash-house may be the Baitāra Tāl, a washing tank, and the Baitāra be the evil-sprite.

#### IV.—*Mahet*.

The general map shows Mahet as a large walled enclosure with the gates W, X, Y, Z, but it would be impossible to indicate on it more than the eastern outline of the city. I have therefore prepared three sheets on a larger scale marked Mahet South, Mahet East, and Mahet West. These show the position of the parts of the city in which I made excavations. I refer to them in illustration of what follows.

#### MAHET SOUTH AND EAST.

The sheets of Mahet South and Mahet East show the thoroughfare from the gate Y, which I have named "Broad Street." It leads up to the Kachcha Kutī, Pakka Kutī, and other buildings which I have wholly or partially exposed. While walking up this street we reach

\* This quotation is directly taken from a note in Rockhill's *Life of the Buddha* (p. 49), to which I am much indebted. I have merely to remark that the mention of 'arranging the dharmas' as it probably refers to conferring over the sacred writings, and there were none until long after Buddha's death, seems to indicate that the description of the monastery has been furnished by a visitor or resident who saw it in its complete state in later days. It is therefore all the more valuable as a guide in archaeological exploration.

the walls of shops or houses on either side, which I have exposed, and which are marked by the lines *a, a, a*, and *b, b, b*, on either side of the street. The transverse lines *m, m*, and *n, n*, are the trenches which I dug when searching for these walls. In these shops or houses I found some old earthen pots and one copper Indo-Bactrian coin of no value. The settlement boundary pillar S stands to the north of the middle of a large open space, which was probably a market place. This would be easily determined by following out the lines of the walls of shops or residences which I have begun to expose, pushing them north and then following the turnings east and west.

The two largest mounds which attracted the notice of the explorer, as rising above the surrounding jungle, were those known in the neighbourhood as the Pakka Kutī and the Kachcha Kutī. I shall describe them first.

The Pakka Kutī is the place fixed on by General Cunningham as the Angulimālya stupa, but he seems to have had no ground for making this identification beyond the size and prominence of the mound. I have opened the mound, cleared the four sides and laid bare the main walls. I have also removed the earth from the main chamber (marked C in the drawing of the Pakka Kutī) and I cannot but conclude that this is not the Angulimālya stupa. In the first place there is no architectural arrangement, such as is clearly perceptible in the undoubted stupa elsewhere found, and in the next place I found in the bottom of the chamber in C, a portion of an older and more substantial wall (marked W), the fragment of an older building. I am inclined to think that this is the site of the Hall of the Law built by Prasenajit, and I think it is satisfactory in respect of situation with reference to the royal palace, which I believe stood round the place where Saiyad Miran's Dargāh now stands and extended a long way to the west of it. The tomb of this Moslem who was placed in charge of Mahet by the early Mussalman conquerors is likely to have been in the quarter occupied by the governor and his suite, and it is unlikely that they were located anywhere but in the buildings which the ruler whom they displaced had occupied. There are clear traces of regularly built and well laid out enclosed buildings in this part of the city, and I believe their exploration would reveal the accuracy of this location which I give to the palace. Not only does this location of the palace fit in with the situation in which the main Buddhist buildings in Mahet are found, but it suits the narrative of Pramati where it describes the ladies of the king's household going from the palace to the river side to bathe. Had the palace lain to the west of the city, they would have had to cross the whole city to make their ablutions and this is not a supposition favourable to the dignity of those ladies.



The Pakka Kuti, as I found it, seems to me to be a later building, or the repaired remnants of a later building, raised on the site of the old Hall of the Law, to mark it, and would thus be one of the memorial buildings mentioned by the Chinese pilgrims. Its true uses cannot be ascertained until all the chambers have been opened. I opened but one, that in the heart of the mound. The plan shows a bird's eye view, and the dotted lines mark a tunnel which I carried through the whole mound to drain it, and thus preserve it. I built strong masonry arches where each wall was cut. The labour of clearing the whole building would be great, as its external dimensions, 143 ft. long by 90 ft. wide, will show. The most curious feature of the building, as far as I explored it, is that in no place did I discover any door or window, and I could discern no staircase.

The Kachcha Kuti is a much more interesting mound. Of its character I have no doubt. The plan which I submit gives no idea, however, of the main impression which it creates. The outermost wall, of which only a portion was exposed, is an ornamental one, with a plastered cornice and coping and served to enclose a large building. The thick main wall of this building, shown on three sides in the plan, is a wall of similar design, which seems to have been carried out to a considerable height, and it undoubtedly was built up to support an older building, which had fallen into decay. I ascertained the existence of buried chambers by sinking a shaft at *p* to a depth of perhaps 20 ft. I then found that a chamber existed below and it seems to have communicated with others. I closed up this opening at *p* with a masonry cap to prevent the ingress of rain. In the passage *fg* I found tiles with a metallic glazing, some green and some blue, which seemed to be part of a floor over which a protective wall had been raised. These tiles were made of a fine preparation of some white substances, but the glazing chipped off readily. The herring-bone lines represent a curious slope made of tiles placed on their edges, which may have been either a graduated approach to a building or a roof covering a passage into one. The long spaces *a* and *b* on either side were clearly enclosed at a later date. The walls *mm* and *nn* were built as an ornamental front, and corresponded in style to similar walls *mn* and *ny* at the sides. They were clearly separate from the other walls *mw* and *wx* and *ny* *nz* which were built up later. In the enclosure *b* I found a clay figure of a monkey (Plate XXV, *d*), and a head of an image near it. From the character of the internal building, as far as I explored it, being that of a private dwelling, as well as from the fact of this being, as I think, the dwelling of a person of wealth, as its ornamentation shows, and its being built in all round to preserve it, I am inclined to surmise that it

may be Sudatta's house, which the pilgrims tell us was so built up, as a memorial of him after his death.

B, C, D, are minor buildings calling for no particular notice. Although carefully examined they yielded no results.

The mound which I have marked stupa A showed itself, where I had cut down the jungle near it, to be only less prominent than the two Kutis. I opened it with care and I soon found it to be what I consider a characteristic stupa. I found a circular tower in the centre, and round it the walls of an enclosing building. I opened it down to water-level but discovered nothing. This is, I believe, the Angulimālya Stupa. It stands on the north-east of a depression, marking what seems to be a street or road, that ran between it and the Kachcha Kuti to the market place round the boundary pillars, already mentioned. Thus the site fits in with the story of the Buddhist records, that the stupa was raised to mark the spot where Buddha stopped the robber chief as he was approaching him along a public street to take his life. It is not that raised at the place of his cremation. Had it been, it should have contained his relics.

The figure at E represents the outline of the central portion of a building crowning another mound yet unopened. It seems to be a stupa.

The place marked as Saiyad Miran's Dargāh is the small rectangular brick-wall enclosure in which are two tombs. Here was buried Saiyad Miran, a Moslem chief who was stationed at Set Mahet, according to the tradition, when the first permanent Muhammadan impression on Oudh was made. Outside the enclosure are to be seen other tombs. None are inscribed.

#### MAHET WEST.

The Jain quarters lay in the west of the city near the Imliya Darwaza, as the west gate is now called. The chief building of interest here is the Muhammadan-looking plastered construction which shows on the ruins of the temple of Somnāth, or Sobhnath, which is still venerated though now seldom visited by Jains. The antiquity of this spot cannot be doubted. Tradition assigns Srāvasti as the birth-place of the teacher now venerated by the Jains as their third patriarch. His life falls within the period of unhistorical tradition, and was probably posterior to the Buddhist age. This is so, as the founder of Jainism was a contemporary of Buddha, and we have not met with any personage in the history of Buddha or his successors who corresponds to Somnath. It is only an anachronism which makes Mahavīra the last Jain patriarch. Tradition, while fixing on the site of the shrine of Somnath at Mahet as the birth-place, or, possibly, the residential cell and teaching centre, of the

onymous patriarch, states that the shrine contained a statue of each patriarch when it was in its complete state. I have therefore opened the mound of Somnath with great care. I have been so fortunate as to recover on this occasion images of seven several patriarchs here. I had previously recovered some images in 1875-76, and had also pieced together the image there lying in the shrine of Somnath. It was one of Sumati, the fifth patriarch. I brought them all into Gondah where I left them to be placed in the Anjuman; but they are now lying in fragments among the rockeries of a chick house in the public garden. I propose to remove the pieces which make up the image of Sumati and send them to the Lucknow Museum.

The plastered building, which now crowns the mound of Somnath, is Pathan in style: and I have a suspicion that it is a tomb of some Mussalman who fell here in some assault. I have not opened it. I have almost wholly cleared the mound round it, and but little more labour would have been needed to open it to its full depth, but this would have probably led to the fall of the domed structure on the top. The most remarkable point about Somnath is that there are traces of an ancient enclosing wall on the south which shows there was at one time a courtyard fronting a large building. When this building fell there was another built above it, and it was similarly succeeded by another, and so on, until we have traces of at least four buildings distinct in style and age, before the final Mussalman erection. A reference to the large plan of Somnath shows a bird's eye view of the walls exposed, but I regret I had no means of procuring a drawing or photograph of the floral pilaster of the building of the second age on the south, or of the cornice of a somewhat later building in the middle. These were of exceptionally neat and elegant design. The floral bricks seem to have been chiselled to remove inequalities after they had been moulded and baked. I have in figures 11 to 31 on plate XXVI shown some of the floral bricks worked into this building.

The images I have recovered at, or near, Somnath are shown in the accompanying plates. One of them bears a Sanscrit inscription recording that it was dedicated in Samvat 1133 by Sutan Pandit. This is possibly the period of a revival of Jainism, and restoration of shrines, after the first wave of Muhammadan invasion had swept by.

There were two other Jain temples near Somnath, the ruins of which I fully opened. They are marked J 1 and J 2. There were three small separate cells, or shrines, in J 2. The images were all found in the northern and middle shrines. The cell to the south was empty. One of these images too, bore the Sanskrit inscription mentioned above, which I consider points to the restoration of these shrines at the same time.

The building marked C was also exposed. It seems to have been a private house.

The building H is decidedly Hindu. I have almost completely opened the mound and I have found that the three cells or shrines correspond remarkably with those in J 2, and they seem to have been built on the outline of older ones of the same shape, which I found when I opened the mound. I consider the temple which stood here to be the reconstruction, or restoration, of the original Hindu shrine and to be one of the oldest buildings in Mahet. If the portion of the Chinese pilgrim's narrative which speaks of the rival temples of Hindu and Buddhist's priests can be held to refer to any buildings within the city, it may be that this is the temple of the heretics, of which it is said that it was overshadowed by a Buddhist fane. There are mounds near, in one of which a rival Buddhist fane may yet be discovered.

S. is the settlement boundary-pillar and lies in the centre of a space where several roads seem to have met. One passed up close by H to Somnath.

#### V. BUDDHIST STONE-INSCRIPTION.

The inscription consists of 18 lines (inclusive of the date), and these lines comprise 17 ślokas in various metres.

I sent two rubbings of the inscription to Mr. Fleet, who submitted them to Professor Kielhorn, whose reading and translation have been published in the *Indian Antiquary*. I regret that, at the time when I forwarded these rubbings, I was under the impression that I had established the spelling of the words to be *Set Mahet*, and this led me to accept an erroneous derivation which Professor Kielhorn published. I have since satisfied myself that there is no sufficient reason to suppose that *ṣ* should be written instead of *t* in the name, although the accuracy of *Set* instead of *Sahet* cannot be doubtful.

I had considerable misgiving as to the rendering of some expressions by Professor Kielhorn, and I have therefore obtained a reading and translation with notes from two competent Sanscrit scholars, Kunwar Jawála Prasád of the Statutory Civil Service, and Pandit Murlidhar of Maudha. The result is a very materially improved and more lucid interpretation, which I readily accept, as it harmonizes with the Buddhist character of the record.

The gist of the inscription is that a Solar King, named Mándhátá, built a fortified city called Jávriśa, in which dwelt many Śrīvástav Káyasths. A head of one of these families, named Vilvaśiva, had a son called Janaka, who became prime minister to Gopála, the sovereign of Kannauj, and married Jijjá. The issue of this marriage was six sons.

The eldest was Pippaṭa and the fifth Vidhyádharma. The latter was a man of high mental and moral endowments and was also distinguished for his skill in the management of elephants. The monarch, Madana, endeavoured, chiefly on the ground of this accomplishment, to make Vidhyádharma content and happy in his service, but he forsook the Saivic cult, and embraced Buddhism, and devoted his wealth to the foundation and endowment of a monastery, a vihára, which probably took the form of a restoration of the Jetavana at Set.

BUDDHIST STONE-INSCRIPTION FROM SET, OF SAMVAT 1176.

L. 1. Om namo vítarágáya || mārānasṭha niyāmya dikshvadhipatī-  
nāyojya satvodaye durllaṅghyāṇyavāmanya sañivararipo rájñáksharáṇyá-  
dritaḥ || uddhartum yatate sma yaḥ karuṇayá śrí—

L. 2. Sákyaśiṅho jagadbodhiṅ prāpya cha buddhatámabhogataḥ sa  
tvāñ paritráyatāñ || sañsárāñbhodhitárāya tārāmuttáralochanáñ || vande  
gírvvāṇavāṇināñ bháratímadhidevatám ||

L. 3. Máñdhátákhyāḥ śatrujichchakra-tulyo vañse bhānor bhānu-  
tejotísāyí | nityānandí sádhu bhoktá trilokíñ rájñámádyaschakravartí  
babhúva || svechchhan bhrāmyan kadáchit sara—

L. 4. Sirubharajoráji-chitríkritámblh̐ samyag drishtvá sarantar-  
mada-kala-sakuni-vrāta-rábábhiraṃyñ | kartuñ kirtē-r-vitānañ sucharita-  
mudito mridbhirápúrya yatnát karkkoṭádhinara—

L. 5. kṣhañ svaptramidamatho nirmame jávrishákhyāñ || tasminna-  
bhúvan dhaninotidhanyāḥ śrípúrvvavástavyakulapradípāḥ | adyápi  
yadvañsabhaváir yasobhirjjaganti subhraiḥ dhavalí.

L. 6. kriyante || teshámabhúdabhiḥjane jaladhávivendu riñdudutytiḥ  
prathita-vilva-sivábbhidhānaḥ | yasya smaráricharaṇám̐bujavatsalasya la-  
kshmir dvijāti-sujanárthijianopabho

L. 7. gyá || sauḥjanyāñbunidhe rudáracharitapratyasyamánainasaḥ  
sádhúnámudayaikadhāma-janani-sthāna-sriyaḥ satvabhúḥ | tasyásijjanako  
janíva hridayaḥ putraḥ satāma—

L. 8. graṇír mányo gádhipurádhīpasya sachivo gopála-námnaḥ  
sudhíḥ || tenochchakairabhiḥjanám̐bunidheḥ prasútá lakshmiriváchyuta-vi-  
bhúshpakántamúr̐tiḥ | ánandakandaja—

L. 9. naní janani-kulánāñ jijjeti sañbhritakulasthitinopayame ||  
tábhyámabhúbāñ stanayāñ shāḍeva shāḍbhirmukhai rekatanur yā ekaḥ |  
jyáyān sutaḥ pippaṭa námāhe—

L. 10. yo dhímánivāgniprabhavaḥ sívábhyāñ || tatpañchamaḥ  
pañchasaránukári tayo-stanújo tanukírtikandaḥ | vidyāvabodhdānukir-  
tyate yo vidyádharma náma yathártha—

L. 11. námā || rasádhikamabhivýápi girísacharaṇáśritañ | hañsiva

mānasañ yasya jahāti sma na bhāratī ॥ mād̐huryaṇ mād̐huno sudhā hima-  
rucherānanda medhāvītā mi—

L. 12. thyaivāmbunidhergabhīrīma gupastnfigatva madreralāñ |  
yasyaikaikagupād̐hirohaṇagireḥ saujanyasāñdrolasatpīyūshaikanidher  
gupena gupinaḥ sarvvepyadhśchakrire ॥ yasmāi

L. 13. gajāgamarahasyavide gajānāmānandanāñ kalayale dhura-  
muddhurāya | bhūpalamāulitilako madanaḥ pradānamānādibhiḥ kshiti-  
patih sprihayāñ babhūva ॥ devā

L. 14. layāñ prathayatā nijakīrtimuchchahiḥ pushyadvija-vrajamude  
tumulambababhūva | yonārjitañ dravipamārta-janopakāri jivānusambhrita-  
mudāmudarambharīṇāñ ॥ satvasārthapa

L. 15. ritrāṇakritakāyaparigrahaḥ | abhūdabhūtāpurvvoyañ bodhi-  
satva ivāparaḥ ॥ ātmajñānakritodayena vigaladrāgādidoshāśrayaprodga-  
chchhanmanasā vichārya bahuso

L. 16. Madhyasthatāñ sangato tenārādhitasatpathena yamināmā-  
nandamūlālayo nirmmayotsasrije viharavidhinā kīrterivaikūśrayaḥ ॥  
sadbodhavañdyachari—

L. 17. tasya nayaikadhāmna śchañdrāvadātahridayaḥ sumatiḥ  
kalāvān | asya priyeshu nirataḥ subhagañ bhavishṇuḥ sambandha bandhu-  
rudayī vidadhe prasastim ॥

5. Samvat 1176.

को नमो नीतरामाय ॥ मारानष्ट नियम्य दिव्यचिपतीनाथोय सलोदये दुर्लभायवमन्य  
संवरिपोराज्ञाचराणादतः । उषर्षु यतते स यः कथयया श्री

साक्षसिंहो जगद्गोविं प्राप्य च बुद्धतामभिगतः स त्वां परिचायतां । संसाराभोधिताराय  
तारासुमारलोचना । वन्दे गोर्वाणवायीनां भारतीमधिदेवताम् ॥

मांघाताष्टः श्रुजिन्मस्तुष्टो वंसे भानो भानुतेजोतिसायी । नित्यानन्दो साधु भोक्ता  
विश्वोक्तो राज्ञामाद्यशक्तवर्ती बभूव ॥ खेचन् भाम्यन् कदाचित् सर-

सिचरजोराजिचिचौकताः सम्यग् दृष्ट्वा सरोक्तर्मेदकलसकुनिन्नारवाभिरम्यं । कर्तुं  
कीर्त्तेर्वितानं सुषरितसुदितो ऋद्धिपूर्य यत्नात् कर्त्तव्योऽधीनर ।

यं सपुरमिदमयो निर्ममे जादवाक्षं ॥ तस्मिन्नभूवन् धनिनोऽतिधन्याः श्रीपूर्ववासायकुल-  
प्रदीपाः । अस्यापि यदंसभवे यशोभिर्जगन्ति सुखैर्धवलौ

त्रियमे । तेषामभूदभिजने जलधविदेन्दुरिन्दुसुतिः प्रथितविल्वप्रिवाभिधानः । यस्य  
अरारिचरयान्मुजवत्सलस्य लक्ष्मीर्हिजातिमुजगार्थिजनोपभो-

म्भा ॥ योजन्यांनुमिधे बदरचरितप्रत्यस्यमानैरनसः साधूनामुदयैकधाम-जननीस्थानत्रियः  
सलभः । तस्यासीज्जनको जनौच हृदयः पुनः सताम ।

प्रसी सान्धो गाधिपुराधिपस्य सचिवो गोपालनाम्नः सुधीः ॥ तेनोच्चैरभिजनाम्बुनिधेः  
प्रकृता लक्ष्मीरिवाद्भुतविभूषणकान्तमूर्तिः । आनन्दकन्दज-

ननी जननीकुलानां जिज्जेति संभृतकुलस्थितिनोपयेमे ॥ ताभ्यामभूयं क्षमयाः पञ्चैव  
पद्भिर्गुणै रेकतनु र्यं रेकः । व्यायान् ह्रुतः पिपठनामधे-

यो धीमानिवाग्निप्रभवः शिवाभ्यां ॥ तत्पंचमः पंचसरानुकारौ तयोस्तनूजो तनुकीर्ण-  
कन्दः । विद्यावबोधादनुकीर्यते यो विद्याधरो नाम यथार्थ-

नामा ॥ रसाधिकमभिव्यापि गिरौश्चरणान्निभं । हंसीव मानसं यस्य जहाति स्रग् न  
भारती ॥ साधुर्यं मधुनो सुधा क्षिप्तवचेरानन्दमेधाविता सि ।

व्यैवान्मुनिधे गर्भौरिमगुण सुगलमद्रेरलं । यस्यैकैकगुणाधिरोहणगिरिः सौजन्यसाम्रोहसत्वी  
यूषैकनिधे गुणैर्गुणैर्गुणैः सर्वैर्यधश्चगिरिः ॥ यस्यै

गजागमरहस्यविदे गजानामानन्दनीं कलयते धुरसुद्धराय । भूपालमौलितिलको मदनः  
प्रदानमानादिभिः क्षितिपतिः स्युच्यार्थभूय ॥ देवा-

ल्यैः प्रथयता निजकीर्तिमुच्चैः पुण्यद्विजव्रजमुदेतुमस्तम्भय । येनार्जितं द्रविणमार्त्तजनघो  
कारि जीवानुसम्भृतमुदासुदरकरीणां ॥ सलसार्थप-

रिचाकृतकायपरिपचः । अभूदभूतपूर्वार्थं बोधिसत्त्व इवापरः ॥ आत्मज्ञानकृतोदयेन  
त्रिगुलद्रामादिहोवाक्यप्रोक्तस्त्वमनसा विचार्य बळसो

मध्यक्षातां सौमते तेनाराधितसन्पथेन यमिनामानन्दसूलाक्षयो निर्वर्त्योत्सृज्ये विचार-  
विधिना कीर्त्तेरिवैकाग्र्यः ॥ सद्बोधवंचयचरि । तस्य नयैकधात्मचंद्रावदातद्वदयः सुमतिः  
महाबाह् । अस्य प्रियेषु निरतः सुभगं भविष्यः सम्बन्धवन्मुदयो विदधे प्रसस्तिम् ॥

५ संवत् ११७६ ॥

OM ! SALUTATION TO HIM WHO HAS DONE WITH PASSIONS.

May the revered and illustrious Sākya Siñha who, having curbed the Māras<sup>1</sup> by the eight-fold Path<sup>2</sup> for controlling the passions; who, having directed the thoughts of the rulers of various quarters to the spread of righteousness; who, having ignored the imperial behests, difficult of avoidance, of Kāma (lit. the enemy of Sañvara<sup>3</sup>), in his pity

<sup>1</sup> This seems to be 'pluralis majestatis,' or plural to cover the personification or phases of Māra: Kāma. Krodha, etc.

<sup>2</sup> Ashta niyāmya: ashta does not go with Mārān but with niyāmya, for it alludes, this being a Buddhist inscription, to the 'eight-fold path' (see Oldenberg's translation by Hoey, p. 128).

<sup>3</sup> Sañvara ripu: the enemy of Sañvara, i. e., Kāma, the destroyer of the

strove to set free this world; and who, having attained enlightenment,<sup>4</sup> reached the Buddhahood, protect thee!

I invoke the guiding Bháratí,<sup>5</sup> the deity tutelary of the diction of the gods, whose eyes are superbly brilliant<sup>6</sup> as the stars, to put me o'er the ocean of transmigratory life.

Mándhátá, the conqueror of his foes, peer of Indra, in the dynasty of the Sun, more resplendent than that luminary, happy evermore, holding in virtuous enjoyment the three worlds, was a king of kings, a universal sovereign.

While he was roving about once upon a time at his pleasure, having carefully observed a lake with its waters painted with the tints of the pollen of the lotus, and joyous with the song of flocks of happy singing birds, he, who delighted in good deeds, with a view to extend his fame, by great exertions filled in earth, and then built this town of his, Jávriśha,<sup>7</sup> depending on the Karkkoṭa for its safety.<sup>8</sup>

In it there were affluent and highly fortunate lights of families of the Vástavya, which has Śrí as its prefix,<sup>9</sup> a stock by whose radiant fame worlds are yet made lustrous.

deity Sañvara. The legend of the killing of this deity is narrated in the Bháḡavat Purán. Cf. Sañvarátri and Sañvarasúdana.

\* This might also be rendered: 'having reached the Bodhi Tree.'

\* Bháratí is the goddess Sarasvatí. The word rendered 'guiding' is tárá, 'one who puts across,' and may be considered as a play on tárá, and mean 'radiant.' There is a further play on the word as it is the name of a later Buddhist goddess.

\* Uttáralochana: ut + tára + lochana, excessively + brilliant (or star) + eye. This may be also 'eye toward stars,' which would mean 'with eyes turned up to the stars.' If tárá be taken as 'pupil of the eye,' the meaning would be 'with protruding pupils,' but, as this would hardly be complimentary to a mortal, it would be less complimentary to a deity. A play on words may also be detected in the name lochana, applied to a Buddhist goddess, but it is too far-fetched to have been contemplated by the author.

\* This may also be read Ajávriśha. Can this be Jais in Ondh?

\* Karkkoṭa is also spelt karkoṭa. The duplication of the *k* being a common occurrence in the case of letters over which *r* is written. The following text from the Vísṇu Kōśa explains the word: 'Karkoṭo vrikshabhede cha vapre śaile tathaiva cha,' i. e., karkoṭa signifies a kind of tree, a rampart, and also a hill. The kind of tree is the vilva or bel tree, I believe. Forts were not unusually fenced in ancient days, and in fact up to a late date in some parts of India, with a thicket of bamboos, prickly pear or other thorny plant, to impede the advance of an enemy. Karkkoṭa is also one of the principal Nāgas mentioned in the Mahábháratá, in the 25 section of the Kdi Parvva.

\* 'Purvva' denotes 'beginning with,' and this passage clearly means the sub-clan of families which goes by the name of Śrí-vástavya. This is most interesting because the word designates a class of Kayasthas, who are now corruptly termed



As the moon from the ocean, so there was born in their family one radiant like the moon, who was known by the name of Vilvaśiva.<sup>10</sup> The wealth of him, who was devoted to the lotus-feet of the enemy of Smara (i. e., Śiva), was a means of enjoyment to the twice-born, to the good, and to the needy.

To him, the ocean of generous deeds, who was hurling back sin with lofty actions, was born a son, Janaka, a peerless shelter for the encouragement of the virtuous, an ornament to his birth-place, a mine of goodness, with a tender heart, a pioneer of the pious, (who became) the wise and trusted minister of Gopāla,<sup>11</sup> the ruler of Gádhipura.<sup>12</sup>

With him who duly maintained the dignity of his house, was mated a maiden of noble lineage, called Jijjá, who was a source of joy to her kinsfolk on the mother's side, and who having her fair form decked with well-fitting<sup>13</sup> jewellery resembled the ocean-born Lakshmí, whose fair form is an ornament to the unfailing one (Viṣṇu).

From these two there were born exactly six sons. The eldest, called Pippaṭa, the wise, though he was but one, was like the six-faced and one-bodied fire-born son of Śiva and his consort.<sup>14</sup>

'Sribāstam,' and among some of them there is a tradition which connects their origin with the city of Śrávastí, where this inscription was found.

This method of expressing names is not un-common. Cf. Śyámānta nāmapatinā ghanapurvakṣa, which yields the name Ghaṇaśyāma.

<sup>10</sup> The association of the word vilva with Śiva in this name is a pretty conceit. The leaves of the vilva (or bel, as it is now called) are sacred to Śiva and presented as an offering to him: and the further context shows that he, who bore the name, was a follower of Śiva.

<sup>11</sup> Some years ago I found at Assi on the Jumna in Etawah district, some inscribed stones, chiefly Jain images, which mentioned Pála rulers, said to have reigned at Kanauj. One ran: 'Samvat 1227, Phálgun Sudi 9, Somdima, rá, ut Śrī Rudrapála.'

<sup>12</sup> Gádhipura is Kányakubja, the modern Kanauj. Some say it is the modern Gházipur.

<sup>13</sup> The word here used is achyuta, which literally means 'not falling,' and the same word is used of Viṣṇu at the end of this paragraph. In the latter case it is a name often used of Viṣṇu. In the former case it has been imported for the sake of the pun.

<sup>14</sup> The eldest of the six sons is compared to Kárttikeya (son of Śiva and his consort Párvatí, n. b., Śivábhyām, dual), who is said to have been six-faced and one-bodied. "He was born of Śiva without the intervention of his wife, his generative energy being cast into the fire and then received by the Ganges, whence he is sometimes described as son of Agni and Gangá; when born he was fostered by six "Krittikás or Pleiades, who offering their six breasts, the child became six headed" (vid. Monier Williams; Sans. Dict. s. v. Kárttikeya). This legend explains the names Śhaḍánana and Śhaṇmátura (Colebrooke's Amarakośa, p. 7, ed. 1825).

The fifth<sup>16</sup> of these six sons of theirs who resembles "the five-arrowed" (Kāma), and who is the cause of no small fame, who is celebrated for his learning and intellectual power, is named Vidyādhara (wisdom-possessor), an apposite name.

His mind, of mighty grasp and perfect taste, devoted to the feet of Girīśa, Bhārati forsaketh not, even as the swan forsaketh not the broad Mānasa lake, reposing with its vast store of water at the feet of the Lord of Mountains (Himālaya).<sup>16</sup>

Illusive are the sweetness of honey, the nectar of the cool-beamed moon with its mirth-producing property (lit. efficiency), the deepness of ocean's store, and the height of mountain-peaks. A truce to such! Each and every quality-endowed hath been dwarfed by the qualities of him [Vidyādhara] who is the hill for each meritorious quality to ascend, and the one fountain of the full-bodied, sparkling nectar of a goodly life.

Him, versed in the mysteries of elephant lore, and dauntless driver of the pleasant yoke of elephants, the monarch Madana, the forehead-gem of kings, by gifts, honours, and the like sought to win.

The wealth amassed by him (Vidyādhara), who raised his fame on high by building shrines for the gods, a wealth that relieved the poor and filled the bellies of those gratified by the nourishment of life, was more than enough for the crowd of twice-born whom he maintained.

He, who had assumed a human form for the deliverance of the whole range of sentient beings, was, so to speak, a second Bodhisatva, such as never before had been.

By him, who, illuminated by the light of the knowledge of Atman, reflecting often in his mind, which had risen free from the *āśryas*<sup>17</sup> of

<sup>16</sup> Here a play on words comes in, the fifth son being compared to the five-arrowed god, Kāma.

<sup>16</sup> This śloka is remarkable for its conceits which lie in the double significance of the words: *rasa*, *abhivyāpi*, *girīśa*, and *mānasa*, in comparing Bhārati's love for Vidyādhara's mind with the swan's love of the Mānasa lake. There is also one additional point given by the mention of the swan, as it is Sarasvatī's (i. e. Bhārati's) *vāhana*. The śloka is of immense importance as it gives the date of the inscription.

*Rasa* is a symbol for six, *giri* for seven (cf. *naga*) and *śa* for eleven. *Rasādhikam girīśa* *charanāśritam* (so. *Samvatsaram*); 'the Samvat year resting on the base giri-śa with *ras* added.' This gives 117 with 6 added afterwards, i. e., 1176. The order of the symbolic words used here fulfils the conditions of the rule *ankānām vāmato gatih*, i. e., 'numerical symbols are counted backwards.' The first symbol *rasa* (six) is read last, *śa* (eleven) first, and *giri* (seven) between them.

<sup>17</sup> The *āśryas* are organs of sense as the entrance of evil according to Buddhists and the evils are the various passions aroused by the perceptions of sense.

the evils of emotion and the other passions which were overcome by the *madhyasthātā*<sup>18</sup> of Saṅgata, had entered the True Path, was made and given to ascetics in the form usual in the case of monasteries, a delight-giving dwelling to be, as it were, the one monument of his reign.

One who cherishes whatever is dear to (Vidyādhara) that monarch, mine of polity, whose acts are highly esteemed by the followers of True Knowledge, a kinsman of his named Udayī, moon-like in the purity of his heart, well meaning and skilful, being highly favored, has composed this panegyric.

5 <sup>20</sup> Samvat 1176.

<sup>18</sup> *Madhyasthātā*. This would at first sight possibly seem to refer to one of the five Buddhist schools, but on closer examination this seems untenable. What is meant is the equilibrium of Saṅgata (i. e., of a follower of Buddha), the state of the Nirvāṇa in this life.

<sup>19</sup> A monastery is dedicated to the Saṅgha or community of Buddhists at large, and not to any one ascetic. Buddha left a formula for this conveyance.

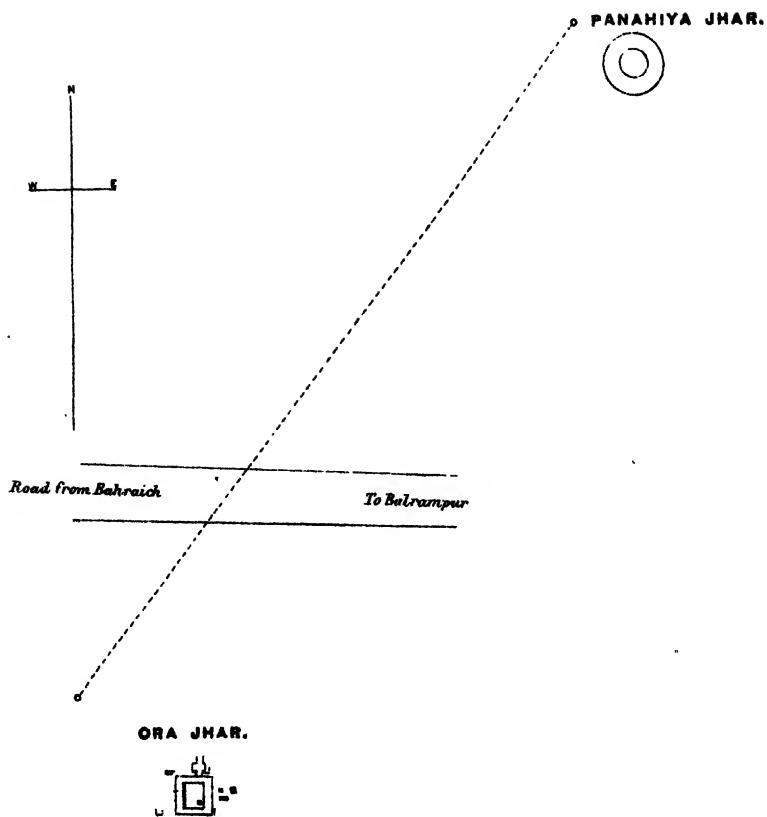
<sup>20</sup> The 5 before Samvat is in accordance with the usage of astrological almanacs to this day. It denotes the Panchāṅg, or 'five members' of each day, which are noted in the śloka: *tithivārāṇcha nakshatram yogam karaṇamevaṇch eti panchāṅgam*. Five columns are ruled in these almanacs and one devoted to each *any* for each day. A suggestion has been made, which is not probably correct, that 5 stands for the five syllables of Vikramāditya.

## 45



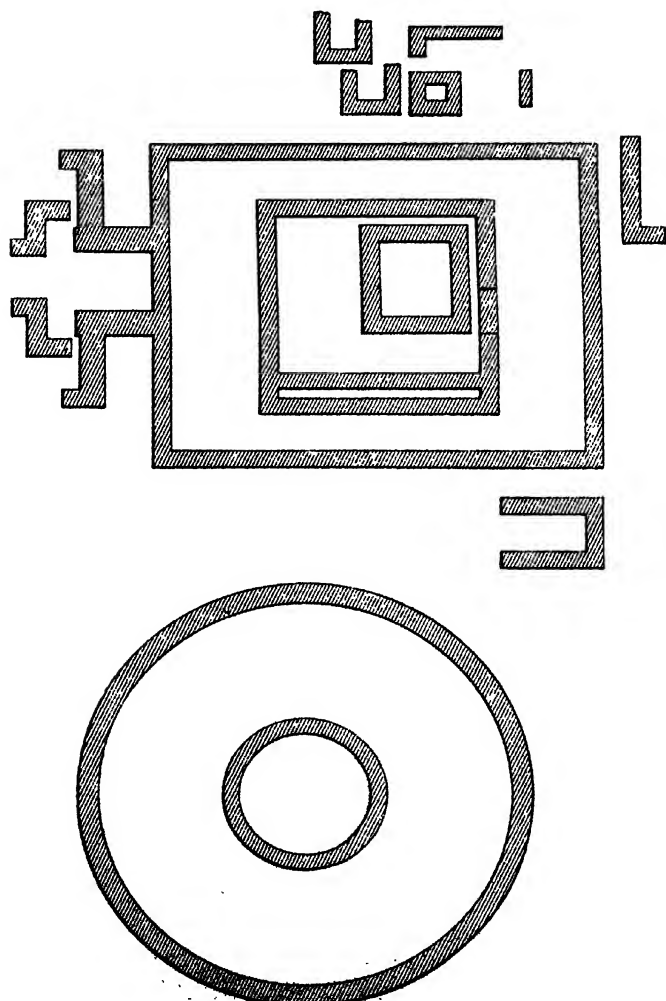


ORA JHAR  
PANAHIIYA JHAR.



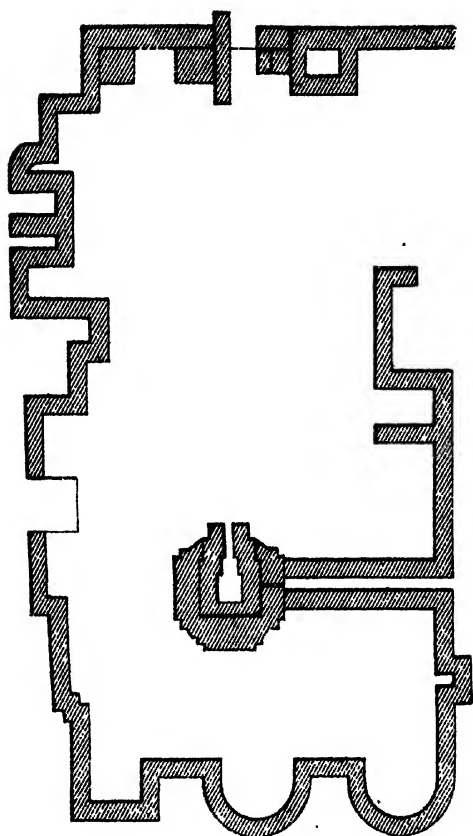


ORA JHAR  
and  
PANAHIYA JHAR.





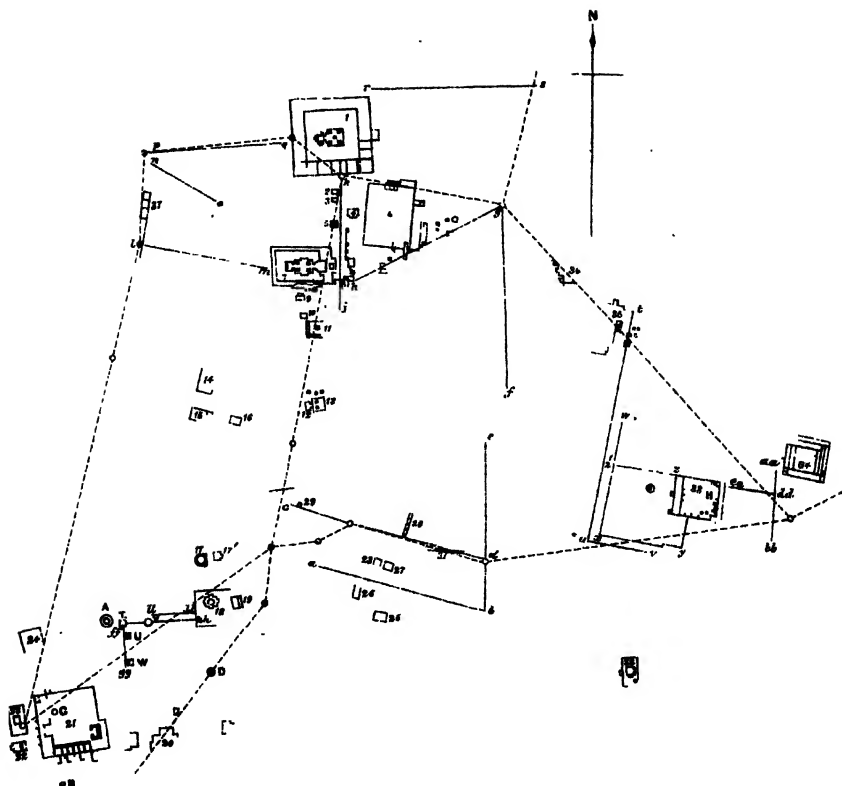




MAHADEO  
Near Kandh Bari



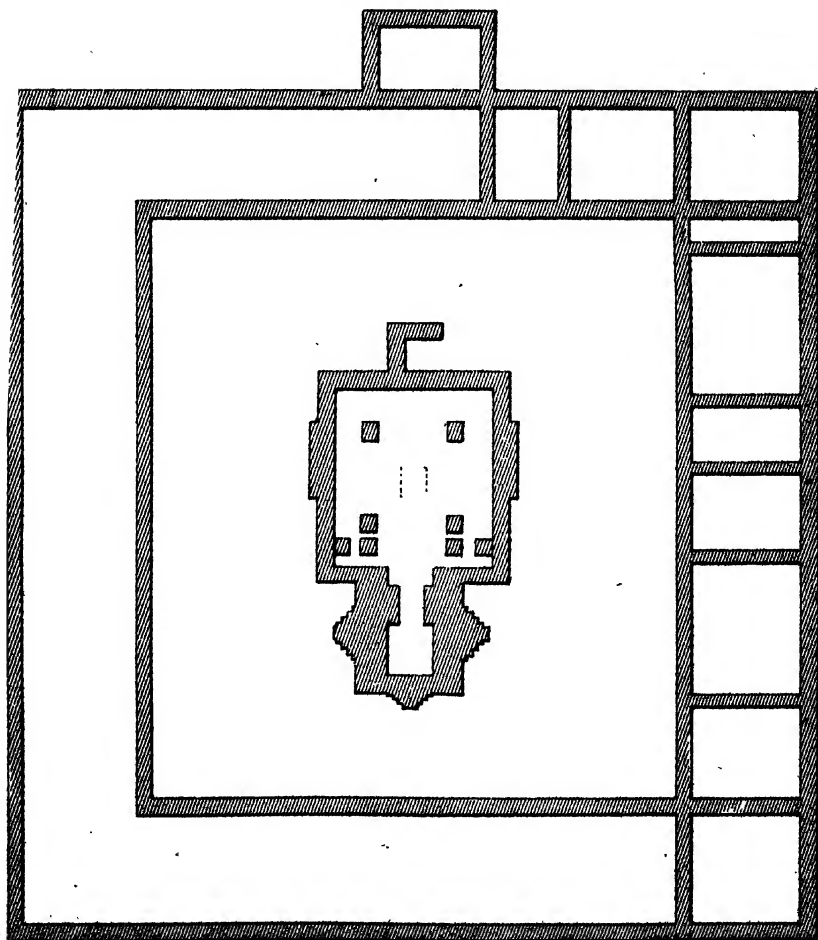
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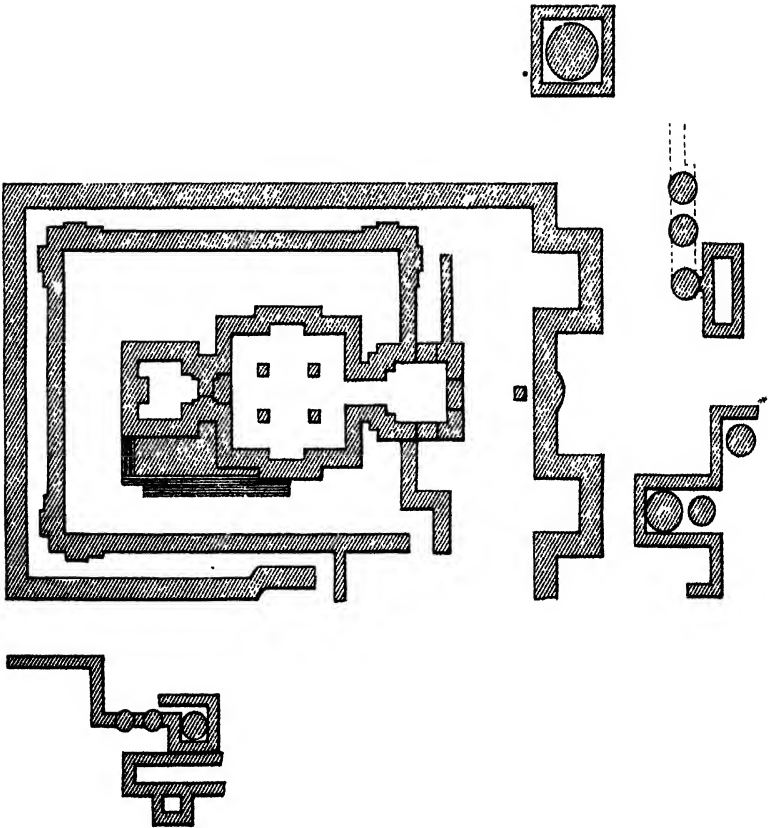


**Building No. 1 in Sahet.**





GANDHA KUTI.  
Building No. 7 in Sahet.



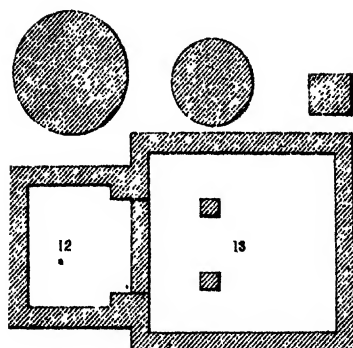
Scale  
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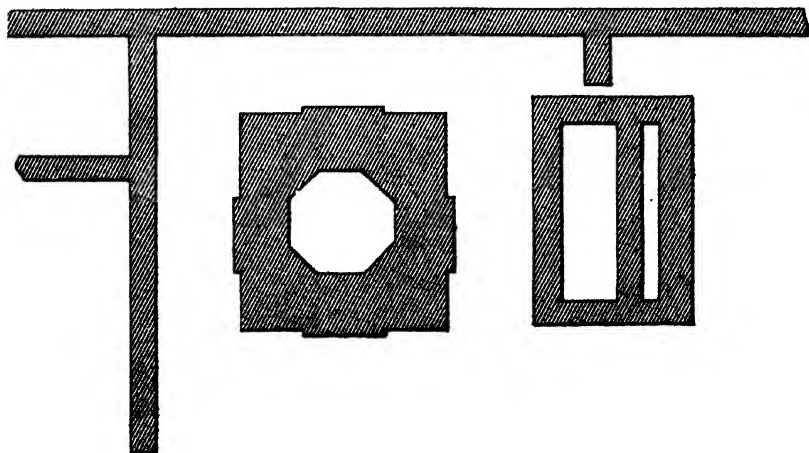
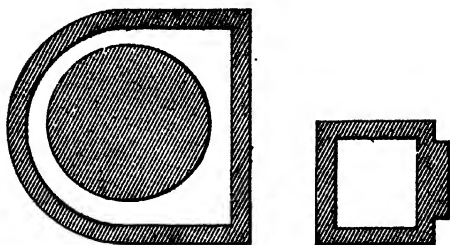
## KOSAMBHA KUTI

Building No. 12 and 13 in Sahet



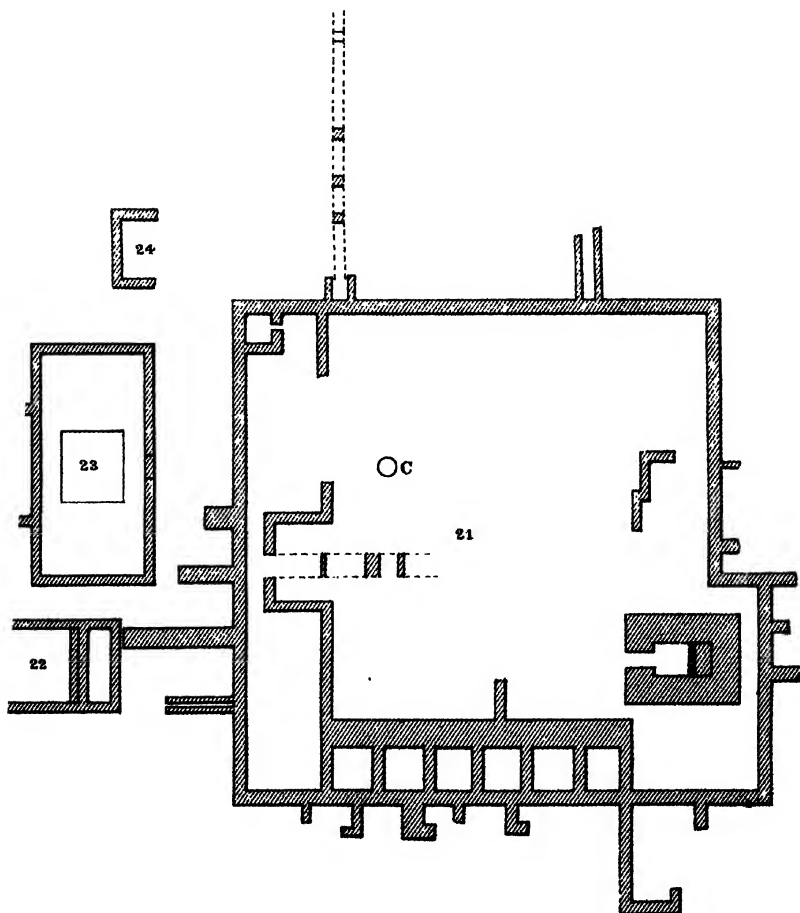


Buildings Nos. 17, 17, 18, and 19 in Sahet





Buildings Nos. 21, 22, 23, and 24 in Sahet.

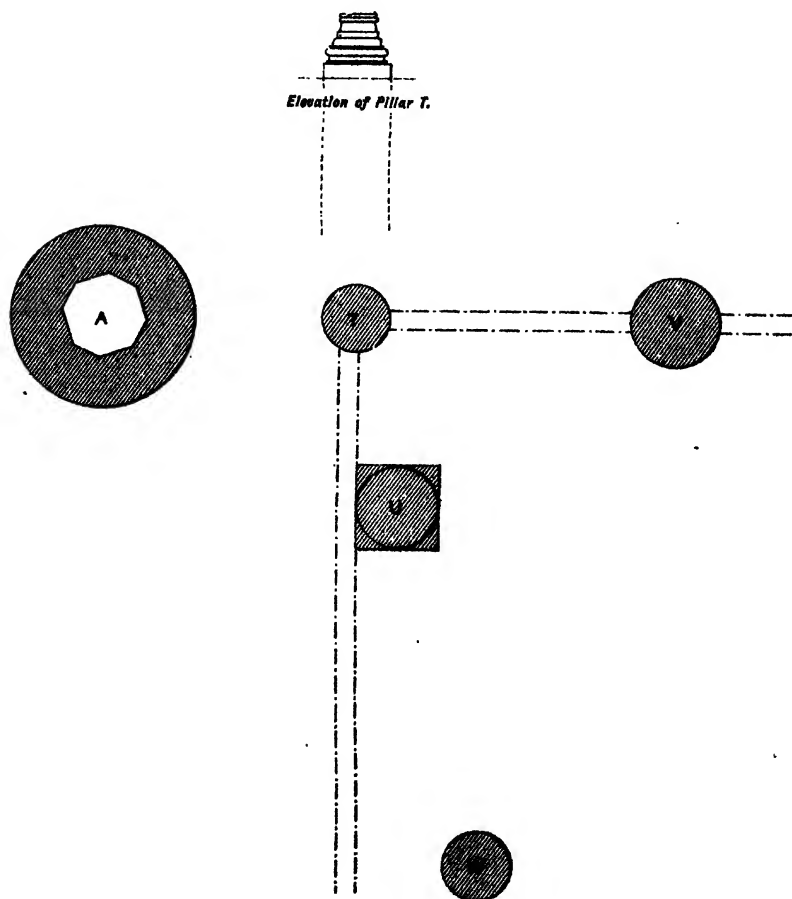


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## OCTAGONAL WELL IN SAHET

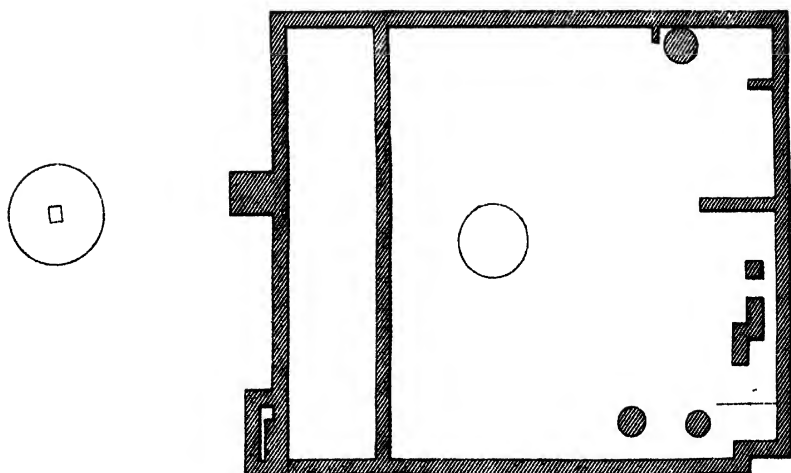
With adjacent remains







SARIPUTTA'S STUPA.

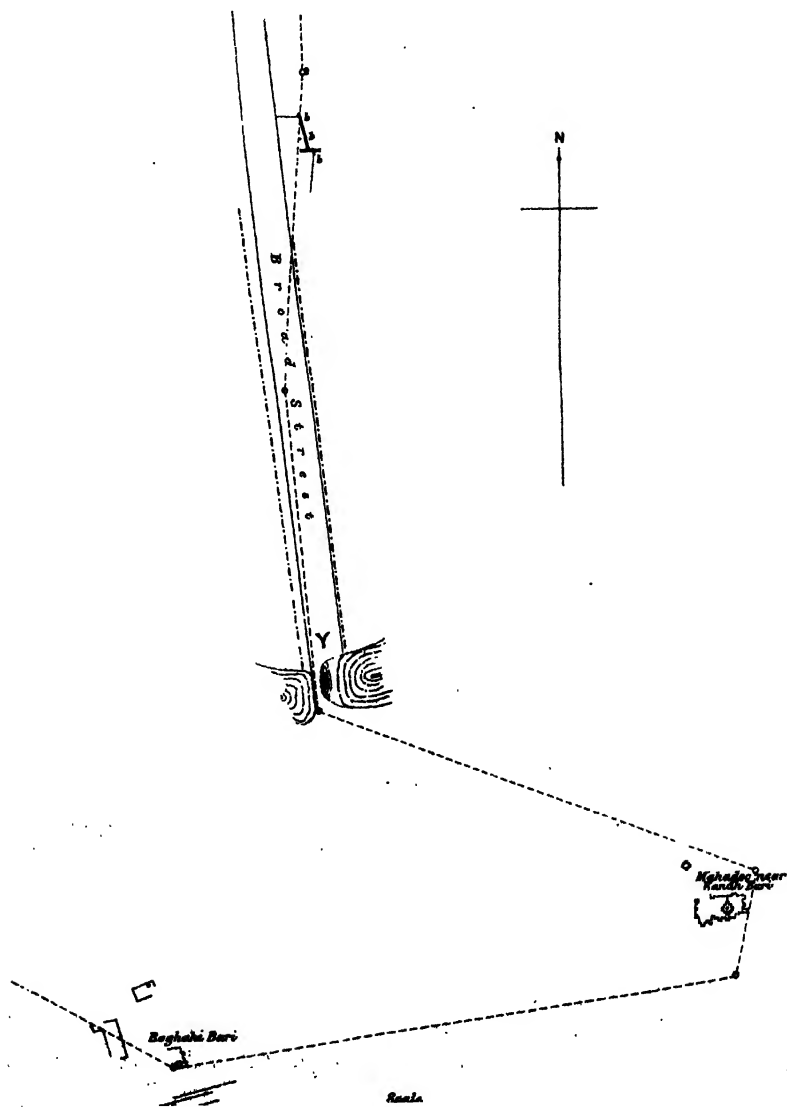


Scale  
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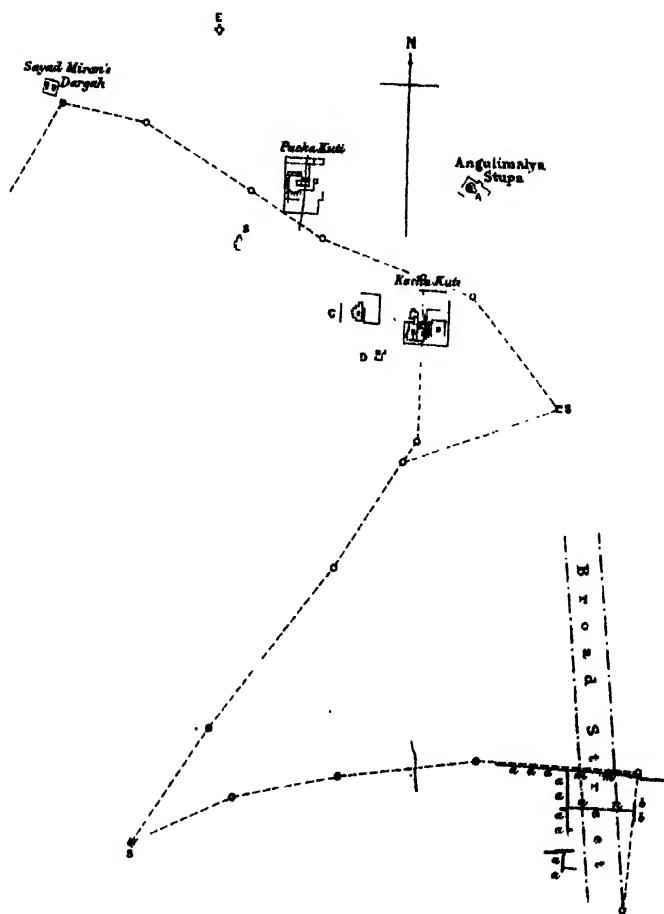
# MAHET SOUTH

Including Baghahi Bari and Kandh Bari



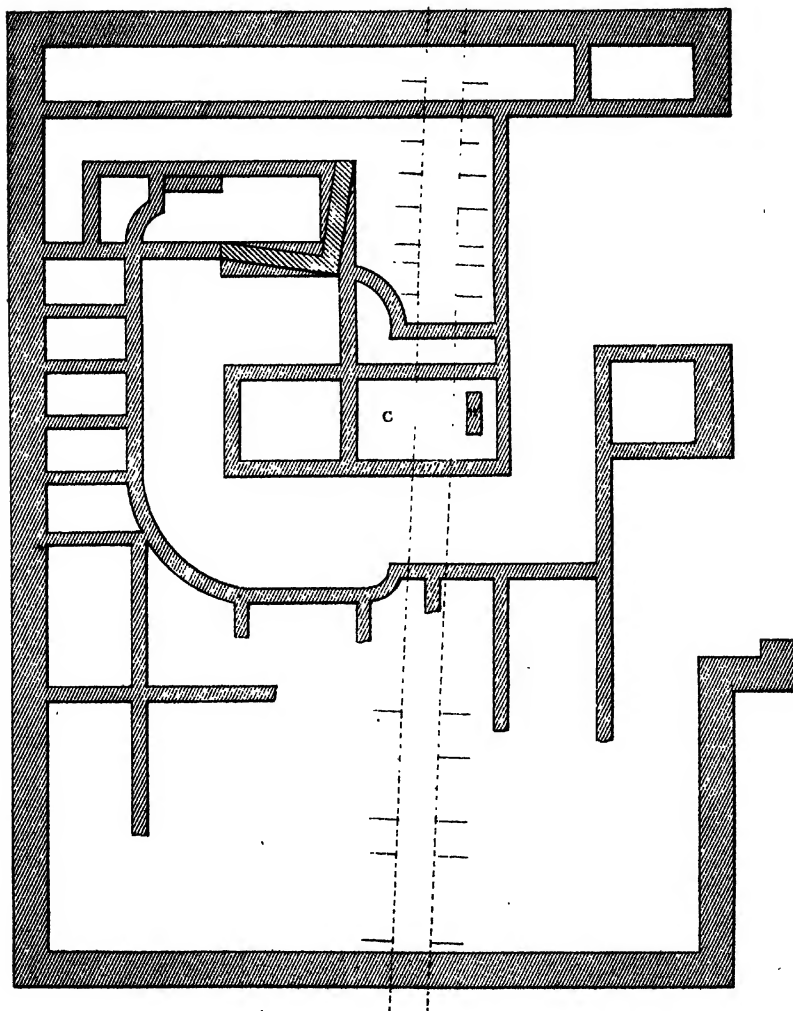


# MAHET EAST





PAOKA KUTI.



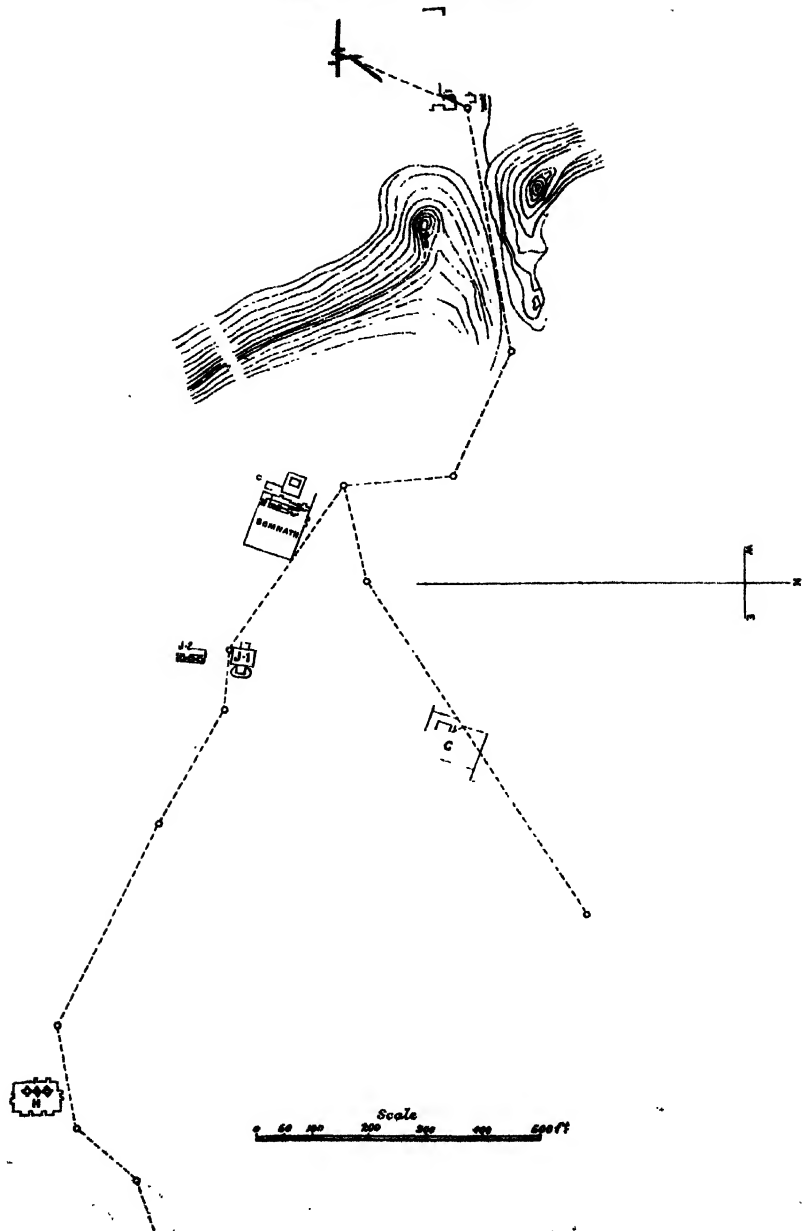






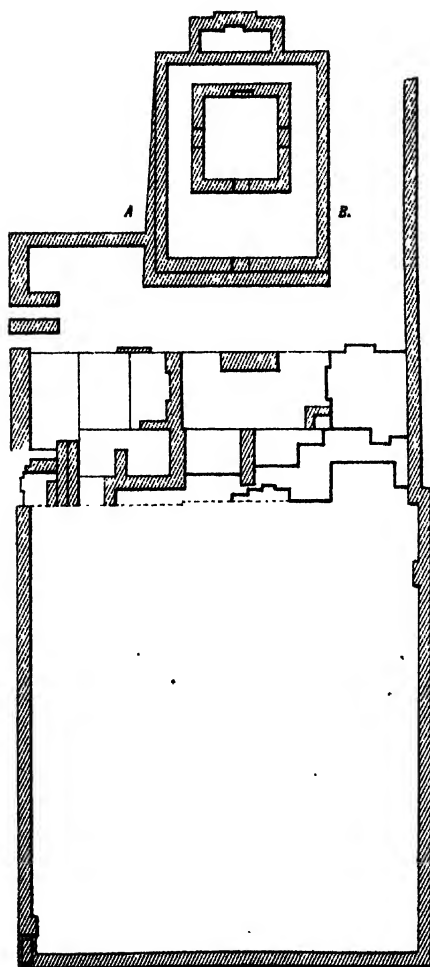


# MAHET WEST.

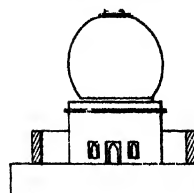




# SOMNATH.



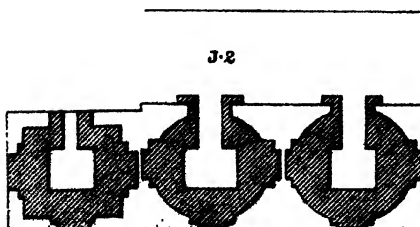
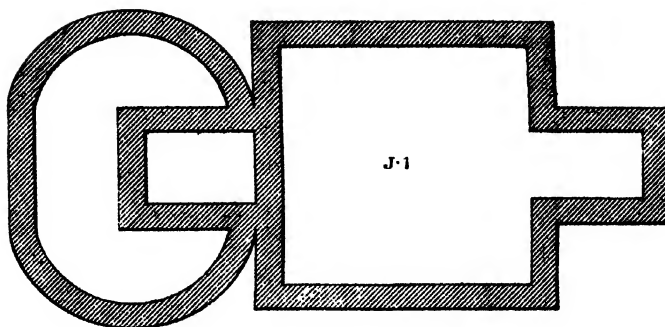
Section on A. B.



Scale  
10 5 0 10 20 30 ft.



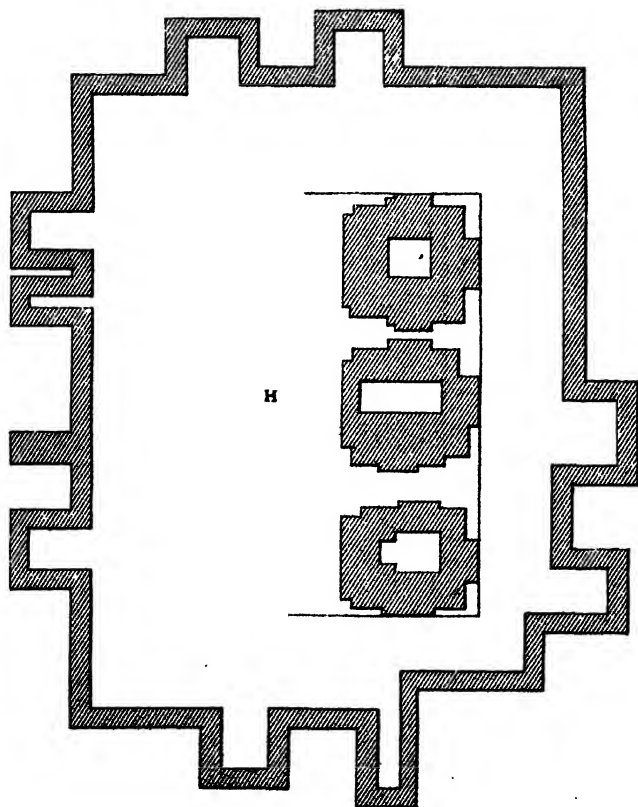
TWO JAIN TEMPLES.







**HINDU TEMPLE.**  
Marked H in map of Mahet west.



Scale  
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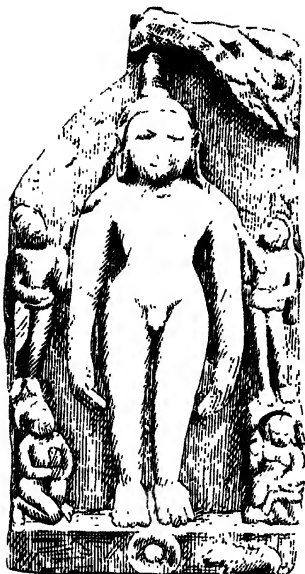




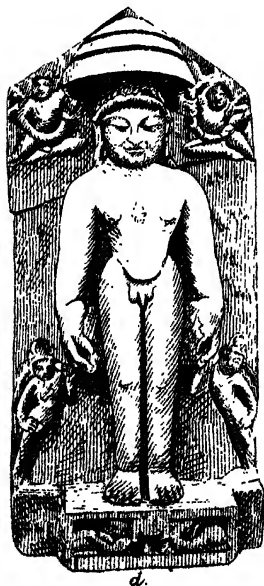
b.









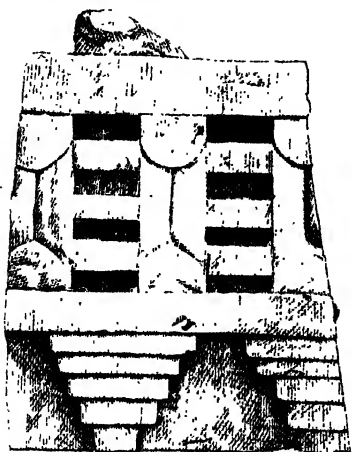






b.





a.



b.



c.



d.

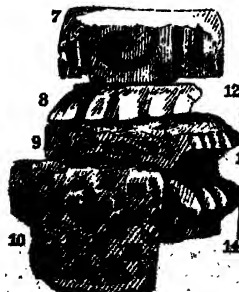
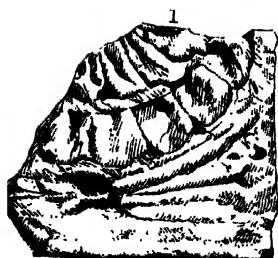
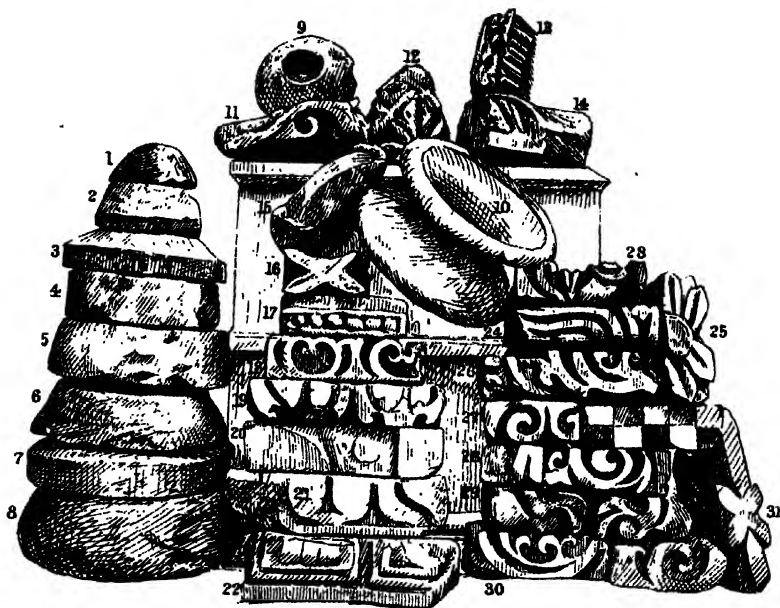


e.

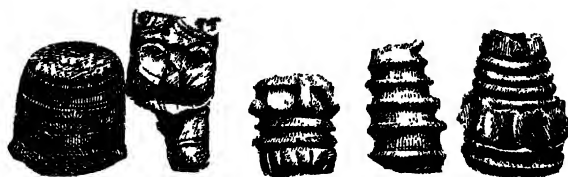


f.

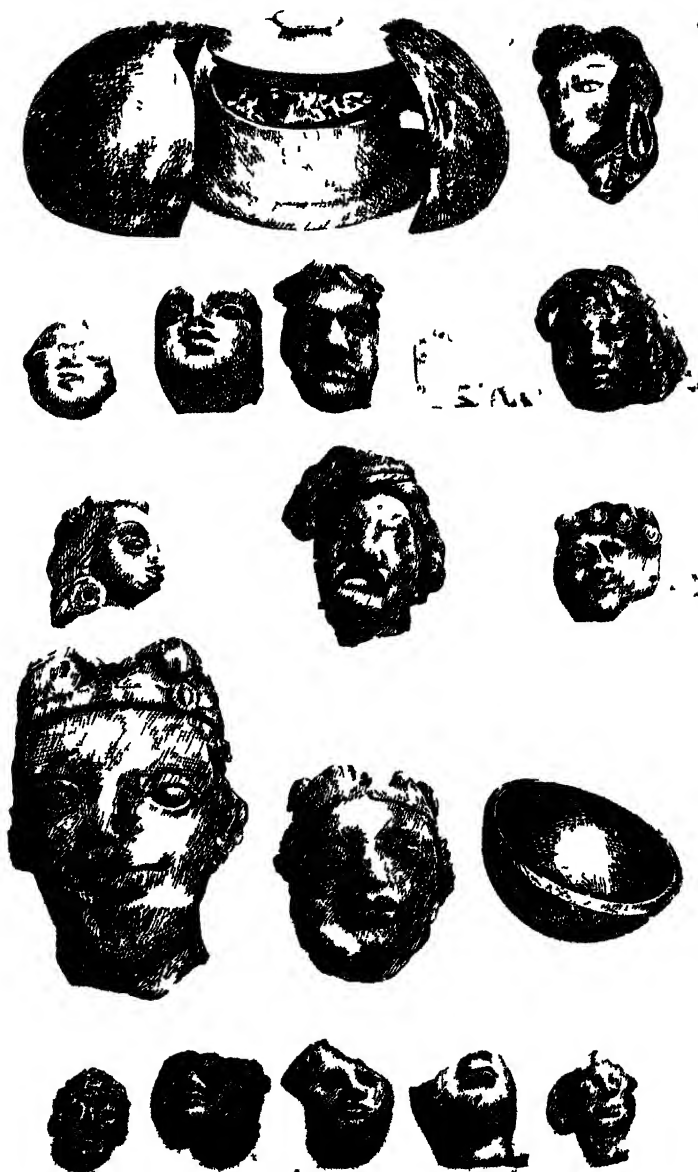






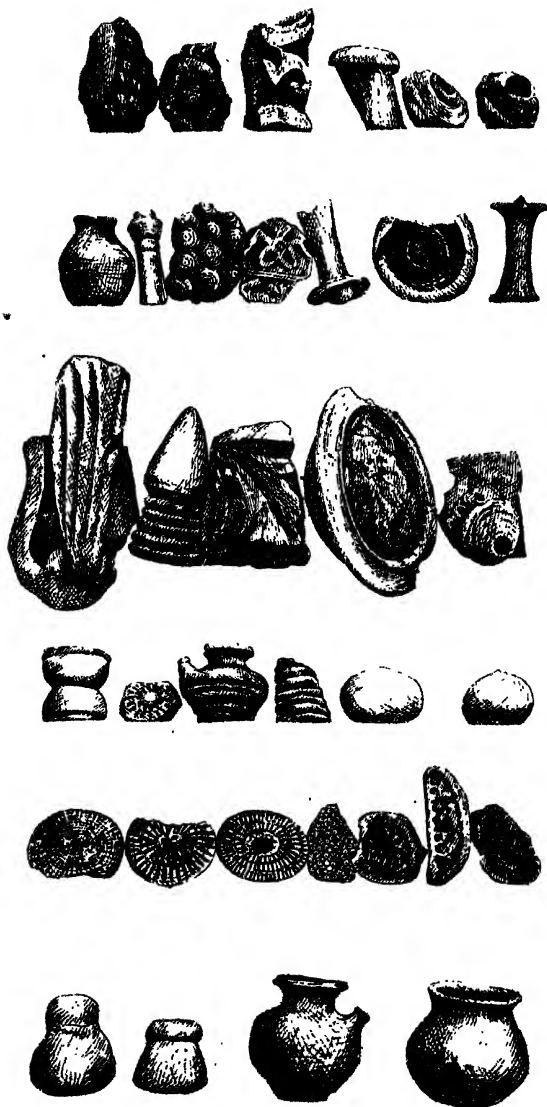


















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VOL. LXI.

PART II. (NATURAL HISTORY, &c.)

(Nos. I to III.—1892.)

EDITED BY

SURGEON-CAPTAIN J. H. TULL WALSH, J. M. S.

NATURAL HISTORY SECRETARY.

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It will flourish, if naturalists, chemists, antiquaries, philologists, and men of science in different parts of *Asia*, will commit their observations to writing, and send them to the Asiatic Society at Calcutta. It will languish, if such communications shall be long intermitted; and it will die away, if they shall entirely cease." SIR WM. JONES.

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- $\begin{array}{l} \text{I} \\ \text{II} \end{array} \left. \vphantom{\begin{array}{l} \text{I} \\ \text{II} \end{array}} \right\} \text{Communal Barracks of Primitive Races (Peal).}$   
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# JOURNAL

OF THE

## ASIATIC SOCIETY OF BENGAL.

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### Part II.—NATURAL SCIENCE.

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No. 1.—1892.

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I.—*Materials for a Flora of the Malay Peninsula.*—By GEORGE KING, M. B., LL. D., F. R. S., C. I. E., Superintendent of the Royal Botanic Garden, Calcutta.

No. 4.

As explained in No. 1 of these papers, I was unable to take up the Natural Family of Anonacæ in its natural sequence. Having now been able to work it out, I present my account of it to the Society. Another of the *Thalamifloral* families (*Dipterocarpeæ*) still remains to be worked out before beginning the *Discifloræ*. In the present paper I have followed, for the most part, the arrangement of tribes and the limitations of genera adopted by Sir J. D. Hooker in his *Flora of British India*; and in most of the instances where I have not done so the fact has been noted.

#### ORDER IV. ANONACEÆ.

Trees or shrubs, often climbing and aromatic. *Leaves* alternate, exstipulate, simple, quite entire. *Flowers* 2- rarely 1-sexual. *Sepals* 3, free or connate, usually valvate, rarely imbricate. *Petals* 6, hypogynous, 2-seriate, or the inner absent. (*Flowers* dimerous in *Disepalum*). *Stamens* many, rarely definite, hypogynous, closely packed on the torus, filaments short or 0; anthers adnate cells extrorse or sublateral, connective produced into an oblong dilated or truncate head. *Ovaries* 1 or more, apo-



carpous, very rarely (*Anona*) syncarpous with distinct or agglutinated stigmas, style short or 0; ovules 1 or more. *Fruit* of 1 or more, sessile, or stalked, 1- or many-seeded, usually indehiscent carpels. *Seeds* large; testa crustaceous or coriaceous; albumen dense, ruminate, often divided almost to the axis into several series of horizontal plates; embryo small or minute, cotyledons divaricating.—Distrib. Tropics of the Old World chiefly; genera about 45 with 500 or 600 species.

Tribe I. UVARIE. *Petals* 2-seriate, one or both series imbricate in bud. *Stamens* many, close-packed; their anther-cells concealed by the overlapping connectives. *Ovaries* indefinite.

*Sepals* imbricate; trees or shrubs.

Flowers small, globular, scarcely opening; often uni-sexual and from the older branches or trunk; ovules 6 to 8, or indefinite.

Trees; flowers 1-sexual; ovules many; torus conical or hemispheric ... 1. *Stelechocarpus*.

Trees or shrubs; flowers unisexual or hermaphrodite; ovules 6 to 8; torus flat ... 2. *Sageraea*.

*Sepals* valvate; climbers.

Flowers small, mostly hermaphrodite; petals incurved, ovules 6 to 8; torus flat ... 3. *Cyathostemma*.

Flowers usually large and from the leafy branches, petals spreading; torus flat.

Flowers 2-sexual; ovules many ... 4. *Uvaria*.

Flowers 1- or 2-sexual; ovules solitary, rarely 2 ... 5. *Ellipeia*.

Tribe II. UNONEE. *Petals* valvate or open in bud, spreading in flower, flat, or concave at the base only; inner subsimilar or 0. *Stamens* many, close-packed; their anther-cells concealed by the overlapping connectives. *Ovaries* indefinite.

Flowers trimerous.

*Petals* conniving at the concave base and covering the stamens and ovaries.

*Ovaries* 1-3, many-ovuled; peduncles not hooked ... 6. *Cyathocalyx*.

Ovaries many, 2-ovuled : peduncles

hooked ... .. 7. *Artabotrys*.

Ovaries many; ovules 4 or more;

peduncles straight ... .. 8. *Drepananthus*.

*Petals* flat, spreading from the base.

Ripe carpels indehiscent.

Ovules many, 2-seriate; petals

lanceolate, stamens with acute

apical appendage ... .. 9. *Canarium*.

Ovules 2-6, 1-seriate on the

ventral suture ... .. 10. *Unona*.

Ovules 1-2, basal or subbasal... 11. *Polyalthia*.

Ripe carpels follicular ... .. 12. *Anaxagorea*.

Flowers dimerous ... .. 13. *Disepalum*.

Tribe III. MITREPHOREÆ. *Petals* valvate in bud, outer spreading; inner dissimilar, concave, connivent, arching over the stamens and pistils, (divergent in some *Mitrephoras*). *Stamens* many, (few in *Orophea*), closely packed; anther-cells (except in *Orophea*) concealed by the overlapping connectives. *Pistils* numerous (few in some *Oropheas*).

Inner petals clawed.

Inner petals connivent in a cone, but

not vaulted ... .. 14. *Goniiothalamus*.

Inner petals vaulted,

Stamens about 6, Miliusoid; inner

petals longer than the outer ... 15. *Orophea*.

Stamens numerous, Uvarioid; inner

petals not longer or very little

longer than the outer ... 16. *Mitrephora*.

Inner petals not clawed.

Flowers globose; petals subequal ... 17. *Popowia*.

Flowers elongate; inner petals much

shorter than the outer ... 18. *Oxymitra*.

Tribe IV. XYLOPIÆ. *Petals* valvate in bud, thick and rigid, connivent; the inner similar but smaller, rarely 0.

Outer petals broad; torus convex ... 19. *Melodorum*.

Outer petals narrow, often triquetrous;

torus flat or concave ... 20. *Xylopia*.

Tribe V. MILIUSÆ. *Petals* valvate in bud, the

outer sometimes very small like the sepals. *Stamens* often definite, loosely imbricate; anther-cells (except in *Phæanthus*) not concealed by the connectives. *Ovaries* solitary or indefinite.

*Ovaries* indefinite.

Sepals and outer petals similar and minute;  
inner petals very large, often cohering by  
their edges.

Ovules 1 or 2: stamens numerous,  
quadrate, with broad truncate  
apical processes concealing the  
anther-cells from above ... 21. *Phæanthus*.

Ovules 1 or 2, rarely 3 or 4; stamens  
few or numerous, compressed, the  
apical process of the connective  
compressed, not broad or truncate,  
and not concealing the anther-  
cells from above ... 22. *Milium*.

Petals larger than the sepals, often saccate  
at the base, subequal or the inner smaller 23. *Alphonsea*.

*Ovaries* solitary.

Outer petals valvate, inner imbricate ... 24. *Kingstonia*.

All the petals valvate ... 25. *Mezzettia*.

# 1. STELECHOCARPUS, Blume.

Trees. *Leaves* coriaceous. *Flowers* dioecious, fascicled, on the old wood. *Sepals* 3, small, elliptic or orbicular, imbricate. *Torus* conical. *Stamens* indefinite; connective dilated, truncate. *Ovaries* indefinite, ovoid; stigma sessile; ovules 6 or more. *Ripe carpels* large, berried, globose, 4-6-seeded.—Distrib. Species 3 or 4, all Malayan.

Leaves pellucid-punctate ... 1 *S. punctatus*.

Leaves not pellucid-punctate.

Flowers of both sexes alike ... 2 *S. nitidus*.

Male flowers smaller than the female ... 3 *S. Burahol*.

1. STELECHOCARPUS PUNCTATUS, King n. sp. A tree 20 to 30 feet high: young branches slender, cinereous-puberulous, becoming glabrous. *Leaves* membranous, minutely pellucid-punctate, elliptic-ovate, shortly acuminate, slightly narrowed in the lower fourth to the rounded sub-oblique base: upper surface shining, glabrous except the pubescent impressed midrib; lower surface shining, paler than the upper, sparsely puberulous or glabrous, the reticulations minute and distinct: main nerves 12 to 14 pairs, bold and prominent on the lower, slightly impres-

sed on the upper, surface: length of blade 7 to 10 in., breadth 3 to 4 in.; petiole .15 to .2 in., stout, pubescent. *Male flowers* in several-flowered fascicles from woody tubercles on the trunk, pedunculate; buds turbinate, nearly .5 in., in diam.; peduncles 1 to 1.5 in. long, stout, thickened upwards, bracteolate, puberulous. *Sepals* very coriaceous, rotund, concave, conjoined at the base, spreading, rugose, pubescent outside, glabrous inside. *Petals* very coriaceous, rotund, concave, glabrous; the outer 3 puberulous outside; the inner three smaller than the outer, quite glabrous, otherwise like them and all of a dark brownish colour. *Anthers* sessile, flat, the cells elongate on the anterior surface, the back striate: apex without any appendage from the connective. *Female flowers* and *fruit* unknown.

Perak; King's Collector, No. 7183.

Although female flowers and fruit of this have not yet been found, I describe it as a new species of *Stelechocarpus* without any hesitation. Its male flowers have exactly the facies of those of *S. Burahol*, Bl.; but they are larger. They, however, differ as to shape of petals; the leaves of this species are distinctly pellucid-punctate (while those of *S. Burahol* are not) and they are broader and have slightly more nerves than those of *S. Burahol*. When boiled, the flowers of the two have exactly the same peculiar sweetish smell.

2. *STELECHOCARPUS NITIDUS*, King, n. sp. A tree 30 to 60 feet high; all parts glabrous except the inflorescence: young branches darkly cinereous, slender. *Leaves* coriaceous, oblong-lanceolate, shortly acuminate, the base acute; both surfaces shining, very minutely scaly, the midrib and nerves deeply impressed on the upper, bold and prominent on the lower; the reticulations distinct on both: main nerves 10 to 12 pairs, curved, sub-ascending, inter-arching within the edge: length of blade 6 to 9 in., breadth 1.8 to 3.25 in., petiole .35 in. *Male flowers* in many-flowered fascicles from tubercles on the trunk, pedicellate; buds turbinate; flowers when open probably nearly 1 in. in diam.: pedicels stout, thickened upwards, 1 to 1.5 in. long, scurfy-puberulous, each with several sub-rotund glabrous bracteoles mostly near its base. *Sepals* very coriaceous, shortly oblong, obtuse, concave, spreading, conjoined at the base, puberulous or glabrescent, warted externally. Outer 3 petals much larger than the sepals and somewhat larger than the inner 3 petals, rotund, concave, very coriaceous, glabrous, with scurfy warts externally near the middle: inner 3 petals coriaceous, rotund, blunt, cucullate, glabrous. *Female flowers* like the males, stamens none: *Ovaries* very numerous, obscurely 3-angled, adpressed-sericeous. *Torus* hemispheric. *Ripe carpels* broadly ovoid, blunt, 2.5 in. long, 1.75 in. in diam., puberulous, minutely warted; pericarp thick, fleshy. *Seeds* about 8 in 2 rows, flattened, 1.25 in. long, and .5 in. thick.

Perak; in dense forest at low elevations, King's Collector, Nos. 7629 and 8224.

This species has the flowers of both sexes alike. The carpels of this species are much larger than those of *S. Burahol*, Bl.; and its leaves are more thickly coriaceous and shining, the nerves and midrib being much more depressed on the upper and prominent on the lower surface.

3. *STELECHOCARPUS BURAHOL*, H. f. and T. Fl. Ind. 94. A tree 20 to 60 feet high: young branches slender, dark-coloured, glabrous. *Leaves* thinly coriaceous, oblong-lanceolate, acute or very shortly acuminate, the base cuneate: both surfaces glabrous, shining, the reticulations minute and distinct, the lower with minute black dots, the upper with very minute scales; main nerves 10 to 12 pairs, sub-ascending, prominent, inter-arching 2 in. within the margin; length of blade 5 to 8 in.; breadth 1.75 to 2.75 in.; petiole .3 to .9 in. *Male flowers* much smaller than the female (only about .4 in. in diam.), in fascicles of 8 to 16 from minutely bracteolate woody tubercles from the branches and trunk, pedicellate; the pedicels slender, ebracteolate, tomentose, from .5 to .75 in. long. *Sepals* coriaceous, triangular, spreading. *Petals* much longer than the sepals, oblong, sub-acute, warted, pubescent inside: anthers with obtuse terminal, dilated, 2-lobed apical appendages from the connective; ovaries 0. *Female flowers* three times as large as the males, and on similar pedicels; calyx not persistent; corolla as in the male. *Ovaries* numerous, on an ovoid-conic torus, oval or obovate, the outer surface compressed, the inner with a vertical ridge and adpressed, pale hairs; stigma sessile, minutely lobed. *Fruit* on stout peduncles 2 to 3 in. long, thickened upwards. *Lipic carpels* few, shortly stalked, globose, obovate, about 1.5 in. long, and 1.25 in. in diam.; when young puberulous, verrucose, afterwards nearly smooth; pericarp pulpy, coriaceous externally. *Seeds* 4 to 6, large, oval, sub-compressed, sub-rugose. Hook. fl. Pl. Br. Ind. I, 47. *Uvaria Burahol*, Blume Bijdr. 14; *Floræ Javæ* Anon. 48, t. 23, and 25 C.; Scheff. in Nat. Tijdsch. Ned. Ind. XXXI, 5.

Singapore; Lobb. Distrib. Java.

There is sometimes a remarkable difference in the length of the petioles in this species, some of those on the same specimen being three times as long as others.

## 2. *SAGERAEA*, Dalz.

*Trees*. *Leaves* shining, and branches glabrous. *Flowers* small, axillary or fascicled on woody tubercles, 1-2-sexual. *Sepals* orbicular or ovate, imbricate. *Petals* 6, imbricate in 2 series, nearly equal, usually orbicular, very concave. *Stamens* 6-21, imbricate in 2 or more series,

broadly oblong, thick, fleshy; anther-cells dorsal, oblong; connective produced. *Ovaries* 3-6; style short, stigma obtuse or capitate; ovules 6 to 8, on the ventral suture. *Ripe carpels* globose or ovoid, stalked.—**DISTRIB.** Species 6, tropical Asiatic.

A genus closely allied to *Docagea*, St. Hilaire, but differing from that in having its sepals and petals much imbricate instead of valvate; in bearing more ovules, and more seeds in its ripe carpels; in its anther-cells being more lateral and not so entirely dorsal as in *Docagea*, and in the apical process of the connective being truncate. The flowers of *Sageraea* are small and the sepals and petals are very concave; and in these respects, as well in the comparative fewness of the seeds in their ripe carpels, they diverge from those of typical *Uvaria*. Hooker filius and Thomson (in their *Flora Indica*), Bentham and Hooker (in their *Genera Plantarum*), and Baillon (in his *Histoire des Plantes*, Vol. I, 202, 281) retain *Sageraea* as a genus,—an example which I would have followed without any hesitation had not Sir Joseph Hooker united it with *Docagea* in his *Flora of British India*. The extreme imbrication both of the sepals and petals appears to me however, in spite of Sir Joseph Hooker's more recent view, so insurmountable an argument against its reduction to a genus in which both these sets of organs are very distinctly valvate, that I adhere to the earlier view that *Sageraea* should remain distinct and be put in the tribe *Uvarie*.

1. *SAGERAEA ELLIPTICA*, Hook. fil. and Thoms. Fl. Ind. 93. A large tree; all parts glabrous except the ciliate petals; young branches rather stout, angled. *Leaves* coriaceous, narrowly oblong, acute (obtuse, when very old); the base narrowed, obtuse or minutely cordate, oblique: both surfaces shining; main nerves 14 to 16 pairs, spreading, faint; length 8 to 12 in., breadth 2.25 to 3.5 in.; petiole .15 in., very thick. *Flowers* monocious, solitary and axillary, or fasciated on tubercles on the larger branches, small, red: pedicels .25 in. long, with several basal and medial bracts. *Sepals* small, semi-orbicular, glabrous, ciliate. *Petals* thick, ovate-orbicular, concave, tubercular outside, glabrous, the edges ciliate, .25 in. long; the inner smaller than the outer. *Stamens* 12 to 18, the connective sub-quadrate at the apex; anthers extrorse. *Ovaries* in female flower about 3, glabrous; ovules about 8. *Ripe carpels* sub-sessile, globose, glabrous, 1 in. in diam., seeds several. *Sageraea Hookeri*, Pierre *Flora Forest.* Coch-Chine t. 15. *Bocagea elliptica*, H. f. and Th. Fl. Br. Ind. I, 92; Kurz F. *Flora Burma*, I, 50. *Uvaria elliptica*, A. DC. in *Mem. Soc. Genev.* v. 27; Wall. *Cat.* 6470, 7421. *Diospyros?* *frondosa*, Wall. *Cat.* 4125.

Burmah to Penang.

An imperfectly known species, badly represented in collections.

## 3. CYATHOSTEMMA, Griffith.

Scandent shrubs. *Flowers* subglobose in di- or tri-chotomous pendulous cymes from the old wood (flowers dimorphous in sp. 3.). *Sepals* 3, connate, hirsute. *Petals* 6, 2-seriate, short, sub-equal, their bases fleshy, all valvate at the base, the tips imbricate. *Torus* flat, margin convex. *Stamens* many, linear; anthers sub-introrse; process of connective oblique, incurved. *Ovaries* many; style cylindric, glabrous, notched; ovules many. *Ripe carpels* oblong-ovoid, many-seeded.

The petals in this genus are so unmistakeably imbricate in æstivation, that I remove it from the tribe *Unoneæ* to *Uvariæ*. The ripe carpels moreover much resemble those of some species of *Uvaria*. Of the five species described below, three are quite new. The first (*C. viridiflorum*) is the plant upon which Griffith founded the genus; while the fourth has been hitherto referred to *Uvaria* under the specific name *U. parviflora*.

Flowers uniform and hermaphrodite.

Flowers in more or less elongated pendent  
cymes

Leaves oblong-lanceolate or oblanceolate;  
inner petals contracted at the base ... 1. *C. viridiflorum*.

Leaves obovate-elliptic to obovate-oblong;  
petals not contracted at the base ... 2. *C. Scortechinii*.

Flowers in stem-fascicles of 10 to 14, or in  
axillary pairs; leaves with pubescent  
midribs ... 3. *C. Wrayi*.

Flowers in 2- or 3-flowered extra-axillary  
or leaf-opposed fascicles or cymes:  
leaves quite glabrous ... 4. *C. Hookeri*.

Flowers dimorphous, the females with a few abortive  
anthers ... 5. *C. acuminatum*.

1. CYATHOSTEMMA VIRIDIFLORUM, Griff. Notulæ IV, 707: Ic. Pl. IV, t. 650. Scandent (?) the young branches thin, glabrous, dark-coloured when dry. *Leaves* coriaceous, oblong-lanceolate or oblanceolate, apiculate; the base slightly narrowed, minutely cordate: both surfaces rather dull; the upper glabrous except the minutely tomentose midrib; the lower darker, puberulous on the midrib and 8 to 10 pairs of rather prominent spreading main nerves; length 4·5 to 7·5 in., breadth 1·5 to 2 in., petiole 2 in. *Cymes* dichotomous, on peduncles several inches long from woody tubercles on the older roughly striate branches, few-flowered, corymbose, minutely rusty-tomentose, with an oblong bract at each bifurcation and another about the middle of each pedicel. *Flowers* 5 in. in diam. *Sepals* broadly cordate, spreading or sub-reflexed. *Petals* acute, the base contracted especially in those of

the inner row, coriaceous, tomentoso. *Ovaries* tomentose. *Ripe carpels* stalked, 1 to 1·5 in. long, oblong-ovoid, blunt, glabrous; stalk ·75 in. Hook. fil. Fl. Br. Ind. I, 57; Kurz For. Fl. Burm. I, 33.

Eastern Peninsula; Griffith. Penang; Maingay (Kew Distrib.) No 36.

A species known by only a few imperfect specimens. According to Griffith, the wood of this species resembles that of a Menisperm. Kurz gives this as a native of the Andamans; but I have seen no specimen from those islands.

2. *CYATHOSTEMMA SCORTECHINII*, n. sp. King. A climber 50 to 70 feet long: branches of all ages, except the very youngest, dark-coloured, glabrous; the very youngest slender and rufous-pubescent. *Leaves* coriaceous, obovate-elliptic to obovate-oblong, shortly apiculate, slightly narrowed to the sub-cuneate, not cordate, base; upper surface rather dull, glabrous except the minutely pubescent midrib; lower glabrous, the midrib slightly muriculate, the reticulations fine, distinct: main nerves 8 to 11 pairs, prominent beneath: length 6 to 10 in., breadth 2·5 to 4 in., petiole ·25 in. *Cymes* di- or tri-chotomous, on pedicels 2 to 12 in. long from the older branches; minutely rufous-tomentose, bracteate in the upper half; the bracts numerous, ovate to rotund, concave. *Flowers* ·5 in. in diam. *Sepals* sub-rotund, united into an obscurely 3-angled flattish cup. *Petals* equal, not much longer than the stamens, sub-rotund, puberulous, coriaceous. *Connective of stamens* produced at the apex, obliquely truncate. *Ovaries* numerous, cylindric, pubescent: stigmas truncate: ovules numerous. *Ripe carpels* oblong, slightly oblique, apiculate, transversely furrowed, glabrous, shortly stalked, 1·25 to 1·5 in. long; pericarp thin. *Seeds* 8 to 10, flattened, ovoid, smooth.

Perak; Scortechini, King's Collector, No. 5857. Singapore: Ridley.

The specimens collected by the late Father Scortechini were referred by him to *Cyathostemma viridiflorum*, Griff., from which species however, this differs by its larger, more obovate, more glabrous, leaves; flat calyx-cup formed by the entirely connate sepals; more rotund petals, not contracted at the base; and narrower shorter-stalked fruit.

3. *CYATHOSTEMMA WRAYI*, King n. sp. A creeper 20 to 60 feet long: young branches rufous-puberulous, ultimately glabrous and darkly cinerous. *Leaves* membranous, broadly oblanceolate, shortly and rather obtusely acuminate, narrowed below the middle to the rounded base; both surfaces finely reticulate, the upper dull when dry, glabrous; the midrib minutely pubescent; lower surface shining, glabrous except the sparsely puberulous midrib; main nerves 8 to 9 pairs, oblique, forming double arches inside the margin, impressed on the upper, pro-



minent on the lower surface; length 7 to 9 in., breadth 2·5 to 3 in., petiole ·2 in. *Flowers* in fascicles of 10 to 14 from tubercles on the older branches, or in pairs from the axils of the leaves, sub-globular, about ·5 in. in diam.; pedicels ·25 to ·4 in. long, granular, sparsely pubescent and with a small ovate bracteole near the base. *Sepals* broadly ovate, spreading, rufous-puberulous and granular outside, glabrous inside, ·1 in. long. *Petals* concave, cartilaginous, slightly imbricate, minutely puberulous especially towards the edges; the outer row ovate-orbicular, sub-acute, ·35 in. long; the inner row smaller, thicker, blunter and more imbricate than the outer. *Stamens* numerous; the connective with a rather thick truncate, 4- or 5-sided apical process concealing the apices of the linear dorsal anthers. *Ovaries* numerous, obliquely oblong, curved, glabrous, pubescent at the base, 1 to 2-ovuled, with a conical, narrow, inflexed stigma. *Ripe carpels* reddish, ovoid, ·4 to ·6 in. long, glabrous, with a single ovoid or 2 plano-convex shining pale brown seeds: stalks about as long as the carpels, slender.

Perak; Scortechini, Wray, King's Collector.

4. *CYATHOSTEMMA* *HOOKERI*, King n. sp. A climber 40 to 80 feet long; all parts, except the inflorescence, quite glabrous. *Leaves* membranous, broadly oblanceolate to oblong or ovate-elliptic, acute or very shortly and obtusely acuminate, the base rounded or sub-cuneate; both surfaces shining, glabrous, minutely reticulate; main nerves 9 or 10 pairs, spreading or ascending, curving, inter-arching within the edge; length 5·5 to 7 in., breadth 2·25 to 2·75 in., petiole ·3 in. *Flowers* ·25 in. in diam., sub-globose, in extra-axillary or leaf-opposed fascicles or cymes of 2 or 3; pedicels slender, puberulous, ·3 to ·4 in. long with 1 or 2 bracteoles. *Sepals* spreading, broadly and obliquely ovate, sub-acute, slightly thickened at the base, ·1 in. long. *Petals* concave; the outer row slightly longer than the sepals but narrower, obovate, contracted into a pseudo-claw at the base, sparsely puberulous outside; the inner row narrower, thicker, and more concave, oblique. *Stamens* numerous, short, with a thick incurved apical process from the connective; anther cells dorsal. *Ovaries* numerous, oblong, thickened upwards, puberulous; the stigma large, sub-quadrata, slightly 2-lobed. *Ripe carpels* numerous, oblong to ovoid, blunt at each end, glabrescent, ·75 to 1·75 in. long and ·6 to ·9 in. in diam.; stalk 1·5 to 2 in. stout. *Seeds* 6 in a single row, compressed, oblong, pale brown, shining. *Uvaria parviflora*, Hook. fl. and Thoms. Fl. Ind. 103; Fl. Br. Ind. I, 51.

Penang; Phillips, Curtis. Perak; Scortechini, Wray, King's Collector.

For upwards of seventy years this plant had been known only by Phillips' scanty specimens from Penang. In 1887 Mr. Curtis sent

flowering specimens of it, together with a single ripe carpel from the same island; while copious flowering and fruiting specimens were, about the same time, received from Perak. In all its parts the plant is essentially a *Cyathostemma*.

5. *CYATHOSTEMMA ACUMINATUM*, n. sp. King. A climber; branches pale brownish, the youngest slender, dark-coloured, rufous-puberulous. *Leaves* membranous, oblanceolate-oblong, caudate-acuminate, the base acute; both surfaces glabrous shining and minutely reticulate; the midrib depressed above and puberulous, beneath prominent and minutely muriculate: main nerves 10 to 11 pairs, spreading, curved, sub-ascending, prominent beneath, depressed above: length 8 to 9 in.; breadth 2·2 to 2·5 in.; petiole 1·5 in., tomentose. *Cymes of hermaphrodite flowers* rufous-pubescent, 4 to 6 in. long; pedicel about as long as the branches, the latter with numerous distichous, oblong, nervose bracts. *Flowers* 4 to 5 in. in diam., on short pedicels. *Sepals* triangular, blunt, spreading. *Petals* as in *C. Scortechinii*; connective of stamens forming at the apex a thick incurving point. *Ovaries* as in *C. Scortechinii* but with conical stigma. *Cymes of female flowers* much shorter than those of the hermaphrodite, dichotomous, few-flowered, about 1·5 in. long (of which the peduncle is 1 in.); slightly rufous-pubescent; bracts few, lanceolate. *Flowers* about 4 in. in diam. when open, buds conical. *Sepals* broadly triangular, cordate, acute, spreading, pubescent. *Petals* coriaceous, granular-pubescent, concave; the outer broadly ovate-triangular, the apex sub-acute, incurved in bud; the inner row smaller, narrower, erect, connivent. *Stamens* absent. *Ovaries* as in the hermaphrodite, but the stigma larger, and not conical.

Upper Perak; Wray No. 3468.

A remarkable species of which I have seen only Wray's incomplete specimens. These specimens are accompanied by some loose young carpels, ovate-globular, oblique, with persistent recurved styles, and a single or at most two seeds. If these carpels really belong to the specimen, the definition of the genus will have to be modified. The structure of both the hermaphrodite and pistillate flowers agrees perfectly with that of the other species above described.

#### 4. *UVARIA*, Linn.

Scandent or sarmentose shrubs, usually stellately pubescent. *Flowers* terminal or leaf-opposed, rarely axillary, cymose, fascicled or solitary, yellow, purple or brown. *Sepals* 3, often connate below, valvate. *Petals* 6, orbicular, oval or oblong, imbricate in 2 rows, sometimes connate at the base. *Stamens* indefinite; top of connective ovoid-oblong, truncate or subfoliaceous. *Torus* depressed, pubescent or tomentose. *Ovaries* in-

definite, linear-oblong; style short, thick; ovules many, 2-seriate, rarely few or 1-seriate. *Ripe carpels* many, dry or berried, few- or many-seeded.—*DISTRIB.* About 110 species—many tropical Asiatic, a few African species, and some Australian.

A genus characterised by the usually large showy flowers with imbricate Rosaceous corolla:—allied to the American genus *Guatteria* Ruiz and Pavon (*Cananga*, Aubl.) and distinguished from it chiefly by its multi-ovulate ovaries.

Flowers more than .5 in. in diam.

Connective of anthers slightly produced at the apex, compressed, oblique.

Carpels stalked, oblong, rugulose ... 1. *U. Larep.*

Carpels ovoid to sub-globular.

Carpels 1.5 to 2.25 in. long, not tuberculate, very pulpy, tomentose ... 2. *U. Hamiltoni.*

Carpels not more than 1 in. long, tubercular, with little pulp.

Carpels ovoid, oblique; leaves woolly-tomentose beneath, even when old ... 3. *U. dulcis.*

Carpels globular or globular-ovoid, leaves glabrous when adult ... 4. *U. Lobbiana.*

Connective produced beyond the apex to about half the length of the anther, flattened, obliquely truncate; flower 1.5 in. in diam. ... *U. macrophyllu.*

Connectives produced, those of the inner anthers truncate, those of the outer flattened and oblique: flower 2 to 3 in. in diam.; leaves conspicuously stellate-tomentose beneath ... 6. *U. purpurea.*

Connectives of anthers slightly, or not at all, produced at the truncate apex.

Whole plant stiffly hairy... 7. *U. hirsuta.*

Whole plant softly hairy... 8. *U. Curtisi.*

Connectives of anthers produced into a broad flattened sub-quadrato process; the outer anthers changed into staminodes ... 9. *U. Ridleyi.*

Anthers oblong-cuneate, the connectives produced at the apex and always truncate.

Leaves pubescent beneath.

\* Flowers in terminal umbellate racemes ... 10. *U. pauci-ovulata.*

Flowers in terminal umbels or in

- many-flowered lateral narrow  
panicles... .. 11. *U. Scortechinii*.  
Leaves glabrous except the midrib, 2·5 to  
5 in. long; flowers less than 5 in. in  
diam. ... 12. *U. micrantha*.  
Flowers small (less than 5 in. in diam.)  
Leaves glabrous except the midrib ... 12. *U. micrantha*.  
Leaves pubescent.  
Leaves on under-surface stellate rufous-  
pubescent; young branches and flow-  
ers outside with scurfy rufous tomen-  
tum ... 13. *U. andamanica*.  
Leaves on under surface and young  
branches minutely tawny-tomentose .. 14. *U. excelsa*.

Species of doubtful position.

- Probably near *U. Lobbiana* ... 15. *U. astrosticta*.  
With axillary flowers ... 16. *U. sub-repanda*.

1. *UVARIA LAREP*, Miq. Fl. Ind. Bat. Suppl. 370. A climber 20 to 40 feet long: youngest branches and petioles sparsely covered with minute scaly stellate hairs; the older cinereous, lenticellate, glabrescent. *Leaves* membranous, elliptic or sub-obovate-elliptic, shortly acuminate, slightly narrowed in the lower fourth to the rounded sub-emarginate, not cordate, base: upper surface glabrous, shining, the midrib minutely tomentose; lower surface with a few short spreading hairs on the midrib and some of the nerves, otherwise almost glabrous; main nerves 10 to 12 pairs, spreading, interarching within the edge, bold in the lower, impressed on the upper, surface; length of blade 5 to 8 in., breadth 2 to 3 in., petiole 2 to 3 in. *Peduncles* from half-way between the leaves, 1 in. long, 1- to 2-flowered (one of the flowers often abortive), warted and yellowish-pubescent; pedicels 75 in. long, with 1 or 2 reniform bracts: flowers 1·5 to 1·75 in. in diam. *Sepals* small, (2 in. long) reniform, united at the base, reflexed, pubescent. *Petals* oblong-oblanccolate, sub-acute, about 75 in. long, sub-coriaceous, puberulous. *Anthers* sessile in very few rows, flattened; the connective slightly produced, flattened, oblique. *Ovaries* numerous, angled, puberulous, with a few long projecting hairs near the apex. *Torus* of the fruit small, sub-globular, pubescent. *Ripe carpels* numerous, stalked, cylindric-oblong, oblique, curved, slightly apiculate, rugulose, minutely rufous-pubescent, 1·25 to 1·5 in. long, and 5 in. in diam. *Seeds* about 10, in 2 rows, compressed, shining. *Stalks* 1·25 to 1·5 in. long, rufous-tomentose.

Perak: King's Collector, No. 4011, Wray No. 1826. \*

2. *UVARIA HAMILTONI*, Hook. fl. and Thoms. Fl. Ind. 96. A

powerful climber: young branches slender, softly rufous-tomentose, becoming glabrous. *Leaves* membranous, elliptic-oblong to elliptic, sometimes slightly obovate, acuminate; the base narrowed or rounded, sometimes slightly unequal, never cordate; upper surface adpressed-pubescent, almost glabrous when old, the midrib minutely rufous-tomentose; lower surface softly stellate-tomentose; main nerves 14 to 17 pairs, spreading, rather prominent beneath; length of blade 4 to 8 in., breadth 2·25 to 3·5 in., petiole ·15 to ·2 in. *Peduncles* solitary or 2 to 3 together, ·75 to 1·75 in. long, extra-axillary, 1-flowered; flowers 1·5 to 2·5 in. in diam.: bract single, sub-orbicular, rufous-tomentose outside, shortly hispid inside: buds turbinate, tomentose. *Sepals* broadly triangular, ultimately reflexed, membranous. *Petals* much longer than the sepals, coriaceous, obovate, the apices obtuse and incurved, minutely tomentose on both surfaces, brick-red. *Anthers* sub-sessile, equal, obliquely truncate at the apex, ·15 to ·2 in. long. *Ovaries* slightly shorter than the stamens, compressed, pubescent. *Torus* hemispheric, tomentose, pitted when adult. *Ripe carpels* on long slender stalks, ovoid to sub-globular, about 1·5 in. long, and 1 in. in diam. when fresh, tomentose, scarlet; when dry slightly constricted between the seeds; stalks slender, tomentose, 1 to 1·5 in. long. *Seeds* about 6, flat, shining. Hook fil. Fl. Br. Ind. I, 48. *U. grandiflora*, Wall. Cat. 6485 E.

In the Forests at the base of the Eastern Himalaya; Madhopore Forest in E. Bengal: Assam; Khasia; Shan Hills (Prazer).

Var. *Kurzii*, King. Leaves with broader bases often minutely cordate; fewer nerves (12 to 14 pairs); smaller flowers (1·3 in. in diam.) on shorter pedicels (1 to 1·25 in.); petals yellowish, ovate-oblong.

South Andaman: Kurz, Kings' Collector.

This was referred by Kurz who first collected it, to *U. macrophylla*, Roxb., then to *U. purpurea*, Bl.: but was finally considered by him as "altogether doubtful." The fuller materials recently received show it to be, in my opinion, a very distinct variety of *U. Hamiltoni*, allied no doubt to *U. purpurea*, Bl., but a much larger plant with smaller flowers and more globular fruit.

3. *UVARIA DULCIS*, Dunal Anon. 90, t. 13. A powerful creeper often 80 to 100 feet long; youngest branches softly cinereous-tomentose; the older sub-glabrous or glabrous, dark-coloured, rather rough. *Leaves* coriaceous, elliptic or oval, sometimes unequal-sided, acute or sub-acute; the base broad, rounded, or sub-truncate, minutely cordate; upper surface sparsely adpressed-stellate-pubescent. The midrib ferruginous-tomentose; lower surface densely sub-ferruginous or cinereous woolly-tomentose; main nerves 8 to 10 pairs, spreading, slightly curving, prominent beneath: length of blade 4·5 to 7 in., breadth 2·5 to 3·5 in.,

petiole 2 in., stout. *Peduncles* 5 in. long, lateral, not axillary, 1-flowered, solitary or 2 to 3 together, each bearing a small ovate deciduous bract; buds ovoid-globose, tomentose; flowers 1.25 to 1.5 in. in diam. *Sepals* broadly triangular, sub-acute, slightly reflexed, fleshy, tomentose on both surfaces. *Petals* much longer than the sepals, sub-coriaceous, broadly ovate, sub-acute, sub-reflexed, minutely tomentose on the outer surface; pubescent on the inner. *Stamens* and *pistils* forming a compact hemispheric mass; anthers sub-sessile, 1 in. long, the connective much produced at the apex, compressed, oblique. *Ovaries* numerous, densely crowded, slightly shorter than the stamens, tomentose. *Torus* depressed-hemispheric, stellate-tomentose, pitted when adult. *Ripe carpels* numerous, stalked, ovoid, oblique, blunt, much and unequally tuberculate, densely and loosely ferruginous stellate-tomentose as are the 1 in. long stalks. DC. Prod. I, 88; Hook. fil. and Th. Fl. Ind. 93; Miq. Fl. Ind. Bat. I, Pt. 2, p. 24; Ann. Mus. Lugd. Bat. II, 8. *U. javana*, Dunal Anon. 91, t. 14; Blume Bijdr. 12; Fl. Javæ t. 3 and 13 B.; DC. Prod. I, 88? *U. aurita* Blume Fl. Javæ t. 3.

Malacca, Griffith; Maingay (Kew Distrib.), No 25. Perak, King's Collector. Penang, Curtis, No. 1414.

As regards the size of its leaves and the colour of its flowers (which appear to vary from green though yellow to purple) this is rather a variable species. One of its forms, barely distinguishable from the type, was named *U. javana* by Dunal who also gave a figure of it. Blume, who again figured *U. javana*, distinguished it from *U. dulcis* by the stellate (not simple) hairs on the upper surface of its leaves. But, as Hook. fil. and Th. point out (Fl. Ind. 98), both kinds of hairs occur on the same leaf. In all the specimens named *U. javana*, received from the Dutch Botanists, the leaves are much smaller and less densely woolly below than those collected in the Malay Peninsula. Miquel suggests that *U. aurita*, Bl. is only a form of this. By neither figuring nor describing the fruit of what he understood as *U. dulcis*, *aurita* and *javana*, Blume neglected one of the best characters in this rather perplexing genus; and it may be that when fruit of the small-leaved Java species issued from the Herbarium of Buitenzorg shall be forthcoming, the reductions above made will have to be cancelled.

4. *UVARIA LOBBIANA*, H. f. and T. Fl. Ind. 100. A powerful climber, often reaching 100 to 150 feet in length: young branches pubescent, ultimately glabrous and dark-coloured. *Leaves* sub-coriaceous, oblong or oblong-oblancoelate, acute or very shortly acuminate, rarely obtuse, narrowed to the rounded or sub-cordate base; both surfaces when very young stellate-furfuraceous, speedily becoming glabrous except the puberulous midrib; the upper (when dry) pale green, the lower brown: main

nerves 13 to 16 pairs, curving slightly, spreading below, suberect above, thin but prominent beneath; length of blade 4 to 7 in., breadth 1·5 to 2·25 in., petiole ·25 in. *Peduncles* only ·25 in. long or even less, terminal or leaf-opposed, 2- or 3-flowered, tomentose, each flower with a large rotund amplexicaul bract; buds depressed-globose, tomentose: flower 1 to 1·2 in. in diam. *Sepals* conjoined into a wavy cup, tomentose outside, minutely pubescent inside. *Petals* coriaceous, often 7 or 8, slightly unequal, broadly oval, obovate, blunt; slightly warted on both surfaces, minutely tomentose on the outer, pubescent on the inner. *Anthers* sessile, flattened, ·1 in. long, the connectives produced at the apices, compressed, obliquely truncate, the outer row sterile. *Ovaries* 4-angled, pubescent except the truncate lobulate stigma. *Ripe carpels* numerous, stalked, globular or globular-ovoid, slightly oblique, boldly tubercled, pubescent, ·5 to ·75 in. in diam., and sometimes 1 in. long; pericarp thin; stalks slender, 1·5 to 2 in. long, glabrescent. *Seeds* 4 to 10, large, plano-convex, smooth. Miq. Fl. Ind. Bat. I, Pt. 2, 34: Hook. fl. Fl. Br. Ind. I, 49.

Malacca; Griffith, Maingay (Kew Distrib.), Nos. 27 and 30. Singapore and Perak; King's Collector. Penang; Curtis. Sumatra; Forbes, No. 3059.

5. *UVARIA MACROPHYLLA*, Roxb. Fl. Ind. II, 663. Scandent usually to the extent of 15 to 20 feet, but sometimes reaching 50 or 60 feet; young branches and petioles rusty-tomentose. *Leaves* coriaceous, elliptic-oblong, rarely elliptic-rotund, sometimes slightly obovate, obtuse or shortly and abruptly acuminate, very slightly narrowed to the rounded or minutely cordate base; upper surface (when adult) glabrescent or glabrous except the tomentose midrib and nerves; lower with lax, sometimes stellate, rusty tomentum, especially along the midrib and 11 to 18 pairs of prominent spreading or oblique nerves: length of blade 4·5 to 10 in., breadth 2·5 to 4 or (in some Burmese specimens) even 6 in.; petiole ·25 in. *Peduncles* extra-axillary or terminal, densely rusty-tomentose, 3- to 5-flowered, each pedicel with an oval or rounded bract; buds globose: flowers 1·5 in. in diam. *Sepals* connate into a cup with wavy obscurely 3-toothed edge. *Petals* much larger than the calyx, sub-rotund, blunt, coriaceous, purple, tomentose outside, pubescent inside; anthers sessile, ·3 in. long: the connective produced at the apex to nearly half the length of anther, compressed, obliquely truncate. *Ovaries* narrow, compressed, tomentose, the stigmas truncate. *Torus* of fruit woody, hemispheric, 1 in. in diam. sparsely pubescent, pitted. *Ripe carpels* stalked, oblong, blunt at each end, glabrous, ·75 to 1·25 in. long, pericarp thin; stalks ·5 to 1 in. long: seeds numerous, oval, compressed, shining. Wall. Pl. As. Rar. t. 122; Cat. 6487 (excl. F. in fruit) Hk. f.

and Th. Fl. Ind. 97; Hook. fil. Fl. Br. Ind. I, 49; Miq. Fl. Ind. Bat. I Pt. 2, p. 23; Thwaites Enum. Pt. Ceyl. 6; Kurz Fl. Burm. I, p. 28; Beddome Ic. Pl. Ind. Or. t. 81. *U. rufescens*, DC. Mem. Anon. 26. *U. cordata*, Wall. Cat. 6486. *Guatteria cordata*, Dunal Anon. 129 t. 30; DC. Prod. I, 93.

Silhet, Chittagoug, Burmah, Malayan Peninsula, Java, Ceylon.

One of the most widely distributed species of the genus and closely allied to *U. ovalifolia*, Bl. I reduce to this species the *Uvaria cordata* of Wall. Cat., No. 6486; but not without some hesitation, as both Miquel and Kurz referred it to *U. ovalifolia*, Bl.

6. *UVARIA PURPUREA*, Blume Bijdr. 11: Fl. Jav. 13, t. 1 and t. 13 A. A sarmentose shrub, often climbing to 20 or 30 feet: young parts softly stellate-rufous-pubescent or tomentose. Leaves thickly membranous, oblong-lanceolate to elliptic-oblong, sometimes slightly obovate, acute or acuminate, the base rounded or slightly cordate, shortly petiolate; upper surface, when adult, shining, glabrous or glabrescent, the midrib and sometimes the nerves tomentose; under surface rather sparsely but softly stellate-tomentose; main nerves 14 to 17 pairs, rather straight, prominent beneath, the lower spreading, the upper sub-erect; length 4·5 to 9 or even 11 in., breadth 2·5 to 3·75 in.; petiole 15 to 25 in. Peduncles 1 to 1·5 in. long, extra-axillary or terminal, usually 1-sometimes 2-flowered; flowers 2 to 3 in. diam.; bracts 2, large, unequal, leafy; buds turbinate. Sepals broadly triangular, sub-concave, membranous, fulvous-tomentose on the outer, glabrescent on the inner surface. Petals longer than the sepals, coriaceous, oblong to obovate, obtuse, coriaceous, dark purple, the inner 3 slightly smaller. Anthers sub-sessile, very numerous, equal, about 3 in. long; the connective much produced at the apex, rhomboid in the inner, compressed and oblique in the outer anthers. Ovaries numerous, densely crowded, slightly shorter than the stamens, tomentose; ovules numerous. Torus depressed-hemispheric, pubescent, pitted when ripe. Ripe carpels numerous, stalked, oblong-cylindric, blunt at each end with 2, more or less obscure, ridges and grooves, minutely rufous-tomentose, sub-tuberculate, 1·5 to 2 in. long and about 5 in. in diam.; stalks 5 to 1 in. long, rufous-tomentose. Seeds numerous, flat. Hook. fil. and Thoms. Fl. Ind. 95; Miq. Fl. Ind. Bat. I, Pt. 2, 22; Ann. Mus. Lugd. Bat. II, 6; Hook. fil. Fl. Br. Ind. I, 47; Benth. Fl. Hong Kong, 9; Vidal y Soler, Revis. Fl. Filipinas, 39; Scheffer Obs. Phyt. I, 4, 26, 65; Ann. Jard. Bot. Buitenz. II, 1. *U. grandiflora*, Roxb. Fl. Ind. II, 665; Wall. Pl. As. Rar. II t. 121; Wall. Cat. 6485, A. to D. and H.; Wight and Arn. Prod. 9. *U. platypetala*, Champ. in Kew Journ. Bot. III, 257. *U. rhodantha*, Hance in Walp. Ann. II, 19. *Unona grandiflora*, DC. Prod. I, 90.



In all the provinces. Distrib: Malayan Archipelago, S. China, Philippines.

Var. *tuberculata*; fruits prominently tuberculate.

Perak; King's Collector, Nos. 960, 4786.

A plant collected in the island of Bangka, closely resembling this in leaves, but with larger flowers with yellow petals, has been described by Messrs. Teysmann and Binnendyk under the name of *U. flava* (Nat. Tijds. Ned. Ind. XXIX, 419). It has also been figured by Miquel (Ann. Mus. Lugd. Bat. II, 6, t. 1). I fear it is merely a form of *U. purpurea*; but not having seen fruiting specimens, I hesitate to reduce it here.

7. *UVARIA HIRSUTA*, Jack Mal. Misc. (Hook. Bot. Misc. II, 87.) A sarmentoso shrub but often climbing to the length of from 15 to 50 feet: young branches and petioles with numerous rather stiff reddish-brown hairs. *Leaves* thinly coriaceous, narrowly elliptic to elliptic-oblong, rarely obovate-oblong, acute or sub-acute, the base rounded or minutely cordate; upper surface with scattered sub-adpressed, stiff, mostly simple hairs, the midrib tomentose; lower surface with more numerous stollate and simple hairs: main nerves 9 to 14 pairs, spreading, depressed on the upper surface (when dry) but prominent on the lower; length 4 to 7 in., breadth 2.25 to 3.25 in., petiole .2 in. *Peduncles* 1 to 2 in. long, lateral or terminal, not axillary, 1- rarely 2-flowered; flowers 1.25 to 1.5 in. in diam.; bract solitary (rarely 2 or 3), lanceolate, deciduous: buds ovoid-globose, stiffly hairy. *Sepals* membranous, broadly ovate, acute, connate, piloso outside, reflexed. *Petals* red, larger than the sepals, broadly ovate, acute; outside tomentose with stiff hairs intermixed, inside sub-glabrous; anthers .15 in. long, sub-sessile, the connective at the apex often slightly produced and obtuse. *Ovaries* 4-angled, truncate, rufous-tomentose, shorter than the anthers. *Ripe carpels* numerous, stalked, cylindric, blunt, 1.5 to 2 in. long, covered (as are the stalks and torus) with dense darkly ferruginous tomentum mixed with stiff hairs: stalks 1 to 1.25 in. long: torus hemispheric: seeds numerous, ovoid, plano-convex. Blume Fl. Javae, Anon. 22, t. 5; Wall. Cat. 6458 (excl. C.); Hook. fl. and Thoms. Fl. Ind. 99; Hook fl. Fl. Br. Ind. I, 48; Miq. Fl. Ind. Bat. I, Pt. 2, p. 24; Ann. Mus. Lugd. Bat. II, 8; Scheff. in Nat. Tijdsch. XXXI, 2; Zoll. in Linnaea XXIX, 304; Kurz Flora Burm. I, 28; Scheff. Observ. Phyt. I, 2. *U. trichomalla*, Bl. Fl. Jav. Anon. 42, t. 18. *U. velutina*, Blume (not of Roxb.) Bijdr. 13. *U. pilosa*, Roxb. Fl. Ind. II, 665.

In all the provinces. Distrib. Malayan Archipelago and Burmah.

There is some difference amongst individuals as to the breadth of the leaves, and on one of the forms with comparatively short but broad leaves Blume founded his species *U. trichomalla*.

8. *UVARIA CURTISII*, King n. sp. A large climber: young branches densely rusty-tomentose, slender. *Leaves* oblong-lanceolate, sometimes slightly oblanceolate, acuminate, slightly narrowed to the rounded base; upper surface glabrous except the strong rusty-tomentose midrib and the nerves; under surface stellate-rufous-tomentose, especially on the midrib, reticulations, and 7 to 12 pairs of ascending, curving, bold main nerves: length 4 to 9 in., breadth 1·7 to 3·25 in.; petiole ·15 to ·2 in., stout. *Flowers* 1 to 1·25 in. in diam., solitary or in pairs, axillary: pedicels 1 to 1·75 in., densely tomentose like the outer surface of the sepals, and with an ovate supra-median bracteole. *Sepals* broadly ovate, concave, spreading, puberulous within, ·35 in. long. *Petals* thinly leathery, white, subequal, ovate-oblong, obtuse; the outer rather broader than the inner, ·5 in. long, puberulous on both surfaces but especially on the outer. *Stamens* numerous, all perfect; connective truncate at the apex, not prolonged into a process; the anthers linear, lateral. *Ovaries* numerous, crowded, elongate, 3-angled, tomentose, with 12 ovules in 2 rows: stigma sessile, large, sub-capitate, corrugated, glabrous. *Ripe carpels* unknown.

Perak; on Ulu Bubong, King's Collector, No. 8543. Penang; elev. 2,000 feet. Curtis No 1415.

9. *UVARIA RIDLEYI*, King n. sp. A strong climber; young branches slender, stellate-rufous-tomentose, ultimately dark-coloured, striate; sparsely lenticellate. *Leaves* sub-coriaceous, elliptic-oblong, acuminate, slightly narrowed to the rounded base; both surfaces with short, stellate, rather pale hairs, scabrid on the upper, soft on the lower surface; the midrib and 10 to 15 pairs of spreading curving slightly prominent main nerves softly rufous-stellate-tomentose on both surfaces; length 3 to 5 in., breadth 1·3 to 2 in.; petiole ·15 in., stellate-tomentose. *Flowers* ·75 to 1·2 in. in diam., 2 or 3 together in short supra-axillary cymes; pedicels stellate-tomentose like the outer surface of the calyx, ·3 or ·4 in. long, with a large orbicular amplexicaul bracteole. *Sepals* orbicular, connate into an obscurely 3-toothed spreading cup ·4 in. in diam., glabrescent inside. *Petals* spreading, sub-orbicular to broadly oblong, very blunt, subequal, rather thin, minutely pubescent on both surfaces but especially on the outer, dark reddish-brown. *Stamens* numerous (the outer row converted into sub-quadrate staminodes) compressed, broad, without filaments; the apical process of the connective broad and flat: anther-cells on the edges of the connective, linear. *Ovaries* numerous, crowded, elongate, narrow, compressed, ridged, minutely stellate-tomentose, the ovules numerous; stigma sessile, short and broad, fleshy, obliquely truncate. *Ripe carpels* ovoid or obovoid, blunt at both ends, minutely pubescent, 1·2 to 1·5 in. long: stalks nearly 1 in., stellate-tomentose.

*Seeds* numerous in two rows, horizontal, oval, compressed, pale brown, shining.

Pahang: Ridley. Perak: Scortechini.

10. *UVARIA PAUCIOVULATA*, H. f. and T. in Hook. fil. Fl. Br. Ind. I, 51. A sub-scandent shrub: young branches densely stellate rufous-tomentose. *Leaves* coriaceous, rigid, narrowly elliptic or elliptic-oblong, obtuse or obtusely acuminate, the base rounded or cordate; upper surface (in adult leaves) shining, quite glabrous; the lower dull, sparsely pubescent; main nerves 10 to 14 pairs, sub-ascending, curving, prominent beneath and impressed above: length of blade 2·5 to 6 in., breadth 1·25 to 3 in., petiole ·2 in. *Racemes* terminal, umbellate, few-flowered, 1·5 to 2·5 in. long, scurfily rufous-tomentose; bracts numerous and imbricate towards the apex, rotund to ovate, tomentose: buds ovoid-globose: flowers 1·5 in. in diam. *Sepals* small, (·3 in. long) orbicular, sub-acute, connate to the middle and densely tomentose outside, densely and minutely puberulous inside. *Petals* very much larger than the sepals, sub-connivent, coriaceous, ovate-rotund, obtuse, the inner 3 narrower; all scaly-tomentose externally, densely and minutely pubescent and veined internally; anthers sub-sessile, cuncate; connective slightly produced at the apex, truncate; ovaries longer than the stamens, flattened, stellate-hairy; stigma truncate, ovules 1 to 3. *Ripe carpels* numerous, stalked, sub-globose, mucronate, densely and minutely fulvous-tomentose, ·35 to ·5 in. in diam., 1- to 2-seeded; stalk ·5 to ·75 in., rather slender. *Seeds* compressed, shining.

Malacca; Maingay (Kew Distrib.), No. 104. Penang: Curtis, No. 825: at elevations of 500 to 600 feet.

11. *UVARIA SCORTECHINII*, King n. sp. A sarmentose, flexuose shrub; young branches and petioles densely covered with rusty, floccose, rufous tomentum. *Leaves* coriaceous, elliptic to elliptic-rotund, obtuse, very slightly or not at all narrowed to the rounded or minutely cordate base: upper surface shining, glabrescent or glabrous, the deeply impressed midrib and nerves tomentose, transverse veins depressed when dry; under surface minutely and softly rufous, pubescent especially on the midrib nerves and reticulations which are all bold and prominent: main nerves 10 to 12 pairs, spreading below, sub-ascending above, forming double arches within the edge: length of blade 4 to 7 in., breadth 2·5 to 4 in., petiole ·2 to ·4 in. *Flowers* 1·5 in. in diam., either terminal in umbels of 2 or 3, or in many-flowered lateral panicles 4 in. in length: peduncles ·5 to ·75 in. long; bracts numerous, but chiefly towards the apices of the peduncles, ovate-orbicular, covered with short rufous flocculent tomentum as are the branches and axes of the panicles. *Sepals* fleshy, triangular, sub-acute, connate in the lower third, concave,

spreading, minutely pubescent. *Petals* fleshy, about 1 in. long, connivent; the outer 3 ovate-rotund, very obtuse, tomentose-pubescent on both surfaces, the outer surface with some small superficial scales, the inner with a round glabrous spot at the base: inner 3 petals obovate, clawed, pubescent outside, glabrous inside except a broad pubescent band near the apex. *Anthers* sessile, angled, the connective projecting beyond the apex, broadly truncate, almost peltate. *Ovaries* (fide Scortechini) "several, with few stellate hairs, 2-3 ovuled: style cylindrical, curved, glabrous." *Fruit* unknown.

Perak: Scortechini, No. 1990.

Scortechini's are the only specimens I have seen, and they have flowers only.

12. *UVARIA MICRANTHA*, H. f. and Th Fl. Ind. 103. A large climber; young branches slender, softly rufous-tomentose, afterwards glabrous, striate, and dark-coloured with pale warts. *Leaves* thinly coriaceous, oblong-lanceolate, acuminate, the base rounded or slightly cuneate; both surfaces glabrous except the rufous-pubescent midrib: main nerves scarcely visible (even when dry), 12 to 15 pairs, spreading; length of blade 2·5 to 5·5 in., breadth '8 to 1·4 in., petiole '15 in. *Peduncles* terminal or extra-axillary, very short, 2-to 4-flowered, softly rufous-tomentose, bracts more or less orbicular; buds globose, slightly pointed, '15 in. in diam.; flowers '4 in. in diam. *Sepals* sub-rotund, densely pubescent outside, sub-glabrous inside. *Petals* broadly ovate, sub-obtuse, granular and minutely tomentose outside, pubescent inside. *Ripe carpels* numerous, stalked, ovoid-globose, rounded at each end, glabrous, 2- to 4-seeded. *Seeds* plano-convex, smooth; Hook. fil. Fl. Br. Ind. 1, 51; Kurz Fl. Burm. I, 22; Miq Fl. Ind. Bat. I, Pt. 2, 26; *Uvaria sumatrana*, Kurz Andam. Report, 29; Hook. fil. Fl. Br. Ind. I. 51. ? *Uvaria elegans*, Wall. Cat. 6474 B. *Guatteria micrantha*, A. DC. Mem. 42; Wall. Cat. 6449. *Polyalthia fruticans*, A. DC. 1 c. 42; Wall. Cat. 6430. *Anazagorea sumatrana*, Miq. Fl. Ind. Bat. Suppl. 382.

Burmah, Malacca, Penang. Distrib. Sumatra.

As regards leaves, this closely resembles *Popowia nitida*, King—a plant of the Andaman and Nicobar Islands; and there is reason to believe that some specimens of that *Popowia* from those islands have been issued from the Calcutta Herbarium as *Uvaria micrantha*. I am also of opinion that *Uvaria sumatrana*, Kurz Andaman Report, 29, and of Hook. fil. and Thoms. Fl. B. Ind. I, 51, is possibly *Popowia nitida*, King.

13. *UVARIA ANDAMANICA*, King n. sp. Scandent: young branches rather stout, softly stellate-tomentose. *Leaves* oblong-oblancoelate, shortly acuminate, much narrowed to the rounded, unequal, or minutely

cordate base; upper surface glabrous, the midrib and sometimes the nerves coarsely puberulous; under-surface reticulate, stellate-rufous-pubescent on the midrib and 18 to 22 pairs of spreading curving nerves; length 5·5 to 9 in., breadth 1·75 to 4 in.; petiole 3 in., tubercular. *Flowers* small, in short terminal or axillary cymes, rarely solitary: pedicels 3 in. long, densely covered like the outside of the sepals with sub-deciduous coarse, rusty, stellate tomentum; bracteole solitary, orbicular, ovate, close to the flower. *Sepals* valvate, orbicular, partly connate, glabrous inside. *Petals* imbricate, orbicular, fleshy, more or less puberulous outside, glabrous within; the inner rather smaller than the outer but both under (in the young state) 25 in. in diam. *Stamens* numerous, narrowly elongate, the apex truncate more or less obliquely; anther-cells lateral. *Ovaries* absent in the stamiferous flower. *Ripe carpels* oblong, blunt (almost truncate) at each end, slightly tuberculate and densely covered with loose, sub-deciduous, rusty-stellate tomentum: pericarp rather thick. *Seeds* about 8 in 2 rows, plano-convex.

South Andaman; King's Collector.

This has been collected only on two occasions, once with undeveloped male flowers and once with immature fruit. The full size attained by the flowers is not known, and the measurements of sepals and petals above given are taken from buds. By its leaves and peculiar deciduous rusty stellate tomentum, the species is however readily recognisable.

14. *UVARIA EXCELSA*, Wall. Cat. 6477. A creeper 30 to 100 feet long: young parts stellate-pubescent; the branchlets tawny-tomentose, speedily becoming glabrous dark-coloured and furrowed. *Leaves* coriaceous, oblanceolate, obovate-oblong to elliptic, the apex acuminate (sometimes very shortly), acute, rarely obtuse, slightly narrowed to the minutely cordate base: upper surface shining, glabrous except the puberulous depressed midrib; lower surface minutely tawny-tomentose; main nerves 10 to 12 pairs spreading, slender; length 3·5 to 7·5 in., breadth 1·5 to 4 in.; petiole 3 to 5 in. pubescent. *Flowers* white, 35 to 4 in. in diam., in contracted cymes from the branches below the leaves, or axillary; pedicels only about 2 in. long, rufous-tomentose with a large bract close to the flower. *Sepals* semi-orbicular, sub-acute, valvate, concave, spreading, tomentose outside, glabrous within. *Petals* in bud imbricate only at their apices, sub-equal, thick, concave, densely and minutely pubescent on both surfaces: the outer broadly ovate, acute, a little larger than the sepals: inner petals ovate, about as large as the sepals. *Anthems* numerous, narrow, the cells linear, lateral; the apical process of the connective thick, sub-quadrangle, obliquely truncate, minutely pubescent. *Ovaries* narrow, elongate, grooved, pubescent; the

stigma thick, sub-capitate, sub-truncate; ovules numerous, in two rows. *Ripe carpels* sub-globular, slightly obovoid, blunt at each end, densely and minutely tomentose, 1·1 in. long and ·9 in. in diam. *Seeds* about 14 in two rows, horizontal, half-oval, flat, smooth, brown. *Mitrephora excelsa*, H. f. and T. Fl. Ind. 114: Hook. fil. Fl. Br. Ind. I, 77; Miq. Fl. Ind. Bat. I, Pt. 2, 31.

Penang: Wallich, Curtis. Perak: King's Collector. Scortechini. Malacca: Maingay (Kew Distrib.), No. 36 *in part*.

This plant was originally issued as a *Uvaria* by Wallich. His specimens of it, however, bore no mature flowers; and Sir Joseph Hooker and Dr. Thomson referred them doubtfully to *Mitrephora*. The excellent specimens recently collected by Mr. Curtis and by the Calcutta Garden Collector show the petals to be sub-equal and concave, imbricate at the apex only, the sepals being quite valvate. This of course is not the typical flower of a *Uvaria*, in which the petals are *much* imbricate. But the stamens, ovaries and ripe fruit are more those of *Uvaria* than of any other genus.

15. *UVARIA ASTROSTICTA*, Miq. Fl. Ind. Bat. Suppl. 370. A climber? Young branches deciduously rufous-stellate-tomentose with simple hairs intermixed, ultimately glabrous strinate and dark-coloured. *Leaves* coriaceous, oblong-lanceolate, sometimes slightly oblanceolate, acuminate, the base rounded or minutely cordate; upper surface minutely scaberulous, the midrib and sometimes the nerves softly rufous-pubescent; lower surface at first densely and softly tomentose, ultimately sparsely stellate-pubescent, sub-scaberulous; main nerves 12 to 16 pairs, spreading, rather prominent on the lower surface: length of blade 4 to 6 in., breadth 1·5 to 1·8 in., petiole ·2 in. *Peduncles* extra-axillary, very short (only ·3 in.), 2-to 3-flowered, rufous-stellate-tomentose as are the 2 or 3 sub-rotund bracts; buds sub-globular; flowers ·6 in. in diam. *Sepals* reniform, sub-acute, united half way. *Petals* nearly three times as long as the sepals, sub-coriaceous, broadly oval, slightly obovate, sub-acute, minutely pubescent. *Anthers* sub-sessile, the connective produced beyond the apices, flattened and truncate, 3 outer anthers barren: torus hispidulous. *Fruit* unknown; Miq. Ann. Mus. Lugd. Bat. II. 8.

Perak; Scortechini, No. 121. Distrib. E. Sumatra.

The Perak specimens of this plant agree perfectly with those from Sumatra on which the species was founded. It is allied to *U. heterocarpa* Bl., to *U. rufa* Bl., and also to *U. timoriensis*. I have never seen the fruit, and Miquel's entire description of it consists of the two words "*carpella velutina*."

#### *Doubtful Species.*

16. *UVARIA SUB-REPANDA*, Wall. Cat. 6483. A climber: young

branches very slender, rather sparsely scurfy-pubescent. *Leaves* membranous, oblong or obovate-oblong, acute, the base rounded: upper surface shining, glabrous except the pubescent midrib; under-surface pale, yellowish-brown when dry, dull, at first puberulous, ultimately quite glabrous including the midrib, the reticulations distinct; main nerves 10 to 14 pairs, spreading, thin but rather prominent beneath: length of blade 5 to 7·5 in., breadth 2 to 2·25 in.; petiole ·15 to ·25 in., densely scaly-pubescent. *Peduncles* axillary, rufous-stellate-tomentose, 1-flowered; bracts cucullate, sub-orbicular. *Petals* narrowly oblong. *Ripe carpels* unknown. Hook. fil. and Thoms. Fl. Ind. 101: Hook. fil. Fl. Br. Ind. I. 50.

Singapore, Wallich.

A very imperfectly known species, the only specimens being Wallich's which are not good and which are in flower only. The only other specimen which agrees with Wallich's specimens as to leaves and branches is from Penang (Curtis No. 1408): but this has a short 2-flowered, extra-axillary peduncle, and I hesitate to identify it with *U. sub-repanda*.

#### 5. *ELLIPEIA*, H. f. and T.

Characters of *Uvaria*, but with solitary, ventral or sub-basal ovule and 1-seeded carpels, the style sometimes elongate.

Distrib. Malaya: species 10 or 11.

Flowers all hermaphrodite.

Flowers in groups.

Leaves oblong or narrowly obovate-oblong,  
acuminate, pubescent, puberulous or  
glaberrulous beneath: flowers in short  
panicles ... .. 1. *E. cuneifolia*.

Leaves obovate-oblong, obtuse, softly tomentose beneath, peduncles 3- or 4-flowered ... 2. *E. leptopoda*.

Leaves oblong or elliptic-oblong, acute, glabrous, cymes 3-to 5-flowered ... 3. *E. glabra*.

Flowers solitary.

Leaves oblong-lanceolate to ovate-lanceolate, acuminate, minutely granular above when dry ... .. 4. *E. costata*.

Flowers unisexual or polygamous, solitary or in pairs.

Leaves shortly acuminate, both surfaces minutely granular when dry, not reticulate: stalks of carpels ·15 in. long ... .. 5. *E. pumila*.

Leaves acute, rarely acuminate, not granular,  
reticulations transverse and very distinct;  
stalks of carpels .75 to 1 in. long

... 6. *E. nervosa*.

1. *ELLIPSEA CUNEIFOLIA*, H. f. and T. Fl. Ind. 104. A climber 20 to 100 feet long: young branches at first shortly and densely rufous-tomentose, ultimately sub-glabrous. *Leaves* thinly coriaceous, oblong or narrowly obovate-oblong, the apex broadly abruptly and shortly acuminate, the base rounded or sub-cordate: upper surface glabrous, shining, the midrib and often the main nerves tomentose; lower minutely rufous-tomentose to pubescent, very often glaberrulous: main nerves 16 to 19 pairs, spreading to sub-ascending, prominent beneath: length of blade 4 to 7 in., breadth 1.5 to 3 in.; petiole .15 to .2 in., tomentose. *Flowers* .75 to 1 in. in diam., in short few-flowered pedunculate rufous-tomentose panicles; bracts at the bases of the pedicels ovate, that at the base of the flower rotund: pedicels .25 to .4 in. long: buds ovoid-conic. *Sepals* small, fleshy; sub-orbicular, slightly united below, spreading, coriaceous, tomentose. *Petals* fleshy, connivent; outer 3 much larger than the sepals, rotund, densely pubescent on both surfaces; inner 3 not much larger than the sepals, rotund, pubescent externally, glabrous internally. *Anthers* sessile, short, the cells on the outer surface; the apex with a broad, round, oblique, truncate appendage from the connective; pistils oblong, tapering to each end, pubescent. *Torus* small, sub-globose. *Bipe carpels* numerous, on long stalks, ovoid, oblique, blunt, with a faint partial ridge and a short lateral, conical process, minutely yellowish-tomentose. *Seed* smooth, ovoid. Hook. Ic. Plant. t. 1025; Hook. fil. Fl. Br. Ind. I, 52.

Malacca: Griffith, Maingay (Kew Distrib.) No. 31. Perak, very common.

In the Perak specimens the tomentum on the under-surface of the leaves is usually less dense than in specimens from Malacca: moreover the flowers are smaller in the Perak specimens, and the floral bract is not close to the calyx but a little way under it. In other respects, however, they agree.

2. *ELLIPSEA LEPTOPODA*, King, n. sp. A climber, 50 to 70 feet long: young branches and petioles densely covered with scurfy cinereous tomentum. *Leaves* coriaceous, obovate-oblong, rarely elliptic, obtuse, or with a very short blunt apiculus, narrowed in the lower half to the minutely cordate, rarely entire, base: upper surface pale-green when dry, sparsely and minutely stellate-pubescent when young, afterwards glabrous except the pubescent midrib: lower surface densely covered with soft, short, dense, pale brown tomentum; main nerves 10 to 12 pairs, spreading, obsolete on the upper, slightly prominent on the lower, surface: length of blade 3.5 to 5 in., breadth 2.25 to 2.5 in., petiole .2 to



·25 in. *Peduncles* extra-axillary, about ·5 in. long; the flowers 3 or 4 on short pedicels, each subtended by a rotund-obovate, cucullate bract; the whole inflorescence and calyx rather sparsely stellate-tomentose: buds depressed-globose: flower ·75 in. in diam. *Sepals* often 4 in number, semi-orbicular, very obtuse, slightly united below, spreading. *Petals* coriaceous, three times as long as the sepals, ovate-rotund, obtuse, recurved, minutely pubescent on both surfaces, dark crimson. *Anthers* sessile, very small, the connective produced beyond the apex, flattened, oblique. *Ovaries* about as long as the anthers; the stigmas truncate, hairy. *Torus* hemispheric. *Carpels* numerous, on long slender stalks, ovate-rotund, ·5 in. long, slightly oblique with a slight lateral beak, minutely cinereous-pubescent. *Stalks* slightly thickened and ridged towards the apex, 1·5 to 2·5 in. long. *Seed* ovoid, flattened on one side, smooth.

Perak; at low elevations, King's Collector. Singapore, Ridley.

A species in its leaves resembling *Uvaria heterocarpa*, Bl. but with different fruit: also like *U. timorensis*, Miq., but with much more obovate leaves.

3. *ELLIPEIA GLABRA*, H. f. and T. Fl. Br. Ind. I, 52. A tree: young branches and inflorescence brown-pubescent. *Leaves* coriaceous, oblong or elliptic-oblong; the base rounded or acute; both surfaces glabrous, not shining, the upper rigid, the lower paler and reticulate: main nerves about 9 pairs, curved, sub-ascending, prominent beneath; length 4 to 5·5 in., breadth 1·5 to 2 in., petiole ·25 in. *Cymes* shortly pedunculate, axillary, 3- to 5-flowered, 1 to 1·5 in. long. *Flowers* 1·5 in. in diam.; bracteole oblong, sub-amplexicaul, recurved. *Sepals* ovate-lanceolate, acute, recurved, ·25 in. long. *Outer petals* obovate-lanceolate, sub-acute, flat, without claws, 1 in. long; the inner shorter, obovate, obtuse. *Ovaries* glabrous below, strigose above; ovule 1, erect (Maingay). *Ripe carpels* sub-globose, ·65 in. long; pedicels slender, ·75 to 1·25 in. long; pericarp thin. *Seed* oblong, pale, with a deep longitudinal furrow.

Malacca; Maingay No. 66 (Kew Distribution).

Except Maingay's I have seen no specimens of this.

4. *ELLIPEIA COSTATA*, King. A shrub about 10 feet high: young branches pale, rusty-tomentose. *Leaves* coriaceous, oblong-lanceolate to ovate-lanceolate, acuminate, the base cuneate: upper surface glabrous but rather rough; lower pale, softly and laxly pubescent, sub-glabrescent when old; main nerves 5 to 9 pairs, bold, sub-ascending, rather straight: length 4 to 6·5 in., breadth 2 to 2·5 in.; petiole ·25 in., tomentose. *Flowers* solitary, extra-axillary, ·75 to 1 in. in diam.: pedicels woody, tomentose, ·15 in. long, with 3 ovate acute bracts at their bases. *Sepals* ovate, obtuse, half as long as the petals and, like them, sericeous exter-

nally and glabrous or sub-glabrous internally. *Petals* subequal, oblong, obtuse, '35 to '45 in. long. *Ripe carpels* ovoid-cylindric, slightly apiculate and shortly stalked, glabrous, '8 in. long and '35 in. in diam.; pericarp thin.

Burmah; on Moolyet at 5,000 ft. Gallatly.

I have seen no entire fruit of this species but only some loose carpels. When ripe they are said by Mr. Gallatly to be red.

*ELLIPEIA PUMILA*, King, n. sp. A shrub 2 to 8 feet high: young branches with minute pale rufous tomentum; when older dark-coloured, glabrous and furrowed. *Leaves* coriaceous, oblong-lanceolate to elliptic-lanceolate, tapering from the middle to the shortly acuminate apex and acute base; both surfaces minutely granular when dry, the upper glabrous; the lower sparsely adpressed-pubescent; the midrib rufous-pubescent; main nerves about 9 pairs, oblique, rather straight, faint on the lower surface, obsolete on the upper; length 4·5 to 7 in., breadth 1·5 to 2·25 in.; petiole '25 to '35 in., pubescent. *Flowers* solitary, or in pairs, extra-axillary, sub-sessile, '75 in. in diam. when expanded, the buds globose; pedicels '1 in. long, coarsely hirsute, bracteate. *Sepals* much shorter than the petals, broadly ovate, sub-acute, strigose-pubescent outside and sub-glabrous inside as are the petals. *Petals* imbricate, spreading, lanceolate or oblanceolate-oblong, the outer at first much shorter than, but ultimately sub-equal to, the inner. *Male-flower*: stamens numerous, with transversely elongate, truncate, heads; pistils 0. *Female flower* like the male but with fewer stamens; pistils about 10, pubescent, 1-ovuled; stigma short, flat, pubescent. *Carpels* 4 to 5, sub-cylindric, tapering to each end, '75 in. long and '25 in. diam., minutely granular and strigose; stalks tomentose, '15 in. long; torus very small. *Seed* solitary, oblong, pale.

In leaves and in general facies this is very like *Popowia nervifolia*, Maing., but its petals are distinctly imbricate.

Perak on Ulu Bubong; King's Collector, Scortechini.

6. *ELLIPEIA NERVOSA*, Hook. fl. and Thoms. Fl. Br. Ind. I, 52. A tree 40 feet high; young branches glabrous, dark-coloured, slightly ridged. *Leaves* coriaceous with pellucid dots, elliptic-oblong, or lanceolate-oblong, acute or rarely shortly acuminate, the base acute; upper surface glabrous; the lower sparsely strigose, the reticulations transverse and very distinct; main nerves 10 or 11 pairs, oblique, rather straight; length 8 to 11 in., breadth 2 to 3·5; petiole '35 to '5 in. glabrous. *Flowers* polygamous, solitary, extra-axillary, rarely in pairs, '75 in. in diam., globose; pedicels stout, '1 to '2 in. long, rufous-pilose, bracteate. *Sepals* broadly ovate, acute, pubescent, much smaller than the petals. *Petals* white, spreading, imbricate; the outer broadly ovate-oblong, ob-

tuse; the inner rather shorter and narrower, oblong; all pubescent especially externally. *Stamens* in the male flowers numerous, with roundish flat heads. *Ovaries* in the female flower many, curved. *Carpels* rather numerous, ovoid, slightly apiculate, narrowed into the stalk, rose-red when ripe (Wray), about 1 in. long and .5 in. in diam., glabrous; their stalks .75 to 1 in. long.

Malacca; Maingay, (Kew Distrib.), No. 47. Perak; common at low elevations. Penang; Curtis.

In the texture and nervation of its leaves this species has a strong resemblance to *Popowia nervifolia*, Maing. and other species in its neighbourhood. But the petals are not those of a *Popowia*, both rows being distinctly imbricate. The fruit moreover is larger than that of *Popowia*, and the albuinen is much more cellular in structure being, in this respect, like that of *Ellipeia cuneifolia*, H. f. & Th.

#### 6. CYATHOCALYX, Champion.

Trees. *Leaves* glabrous. *Flowers* fascicled, terminal or leaf-opposed. *Sepals* free or united into a 3-lobed cup. *Petals* 6, 2-seriate, valvate in bud, subequal, bases concave conniving, blade flat spreading. *Stamens* indefinite, long-cuneate, truncate; anther-cells linear, dorsal. *Ovaries* solitary or 2-6, on a concave torus; stigma large, grooved; ovules many. *Ripe carpels* berried.—DISTRIB. Tropical India and Malaya; species 8.

Ripe carpels ovoid ... .. 1 *O. virgatus*.

Ripe carpels globular ... .. 2 *O. Maingayi*.

In its petals this genus resembles *Artabotrys* to some extent, but *Polyalthia* still more. The ovaries in the first two species are usually solitary; in the third they are 3 in number: the ripe carpels of all three being large succulent and many-seeded. Baillon admits the genus as it was established by Champion and accepted by Hooker filius & Thomson. In the above diagnosis I have however modified the definition so as to provide for the species with more than one ovary.

1. CYATHOCALYX VIRGATUS, King. A tree 40 to 60 feet high: young branches slender, pale, glabrous, the tips alone pubescent. *Leaves* membranous, elliptic-oblong to oblong-lanceolate, shortly and obtusely acuminate, the base cuneate or sometimes rounded; both surfaces shining, the lower rather darker when dry; the upper glabrous, the lower pubescent on the 8 or 9 pairs of sub-ascending rather prominent nerves: length 4 to 6.5 in., breadth 1.25 to 2.75 in.; petiole .25 to .35 in., pubescent. *Flowers* in axillary, sub-sessile fascicles of 2 or 3, about .75 in. long. *Sepals* united at the base, ovate to ovate-lanceolate, spreading, tomentose, shorter than the inner petals. *Petals* tomentose-sericeous; the outer row much longer than the inner, lanceolate, much acuminate,

about, .75 in. long; inner row with orbicular concave base and much acuminate apex, .5 in. long. Connective of *stamens* slightly produced at apex and obliquely truncate. *Ovaries* 4 to 6, hirsute; ovules many, 2-seriate; stigma thick, discoid, sessile; torus conic, truncate, pubescent. *Ripe carpels* solitary, or in pairs and divergent, oblong-ovoid, blunt at each end, minutely tomentose, 2 to 3 in. long, and 1 to 1.5 in. in diam.; pericarp thick; seeds 8 to 10, compressed, elongate and narrowly subreniform, transversely substrate. *Unona virgata*, Blume Bijdr. 14; Fl. Javæ Anon. 43 t. 19 and 25B.; Miq. Fl. Ind. Bat., I. Pt. 2, p. 42. *Meiogyne virgata*, Miq. Ann. Mus. Lugd. Bat. II., 12. *Cananga virgata*, Hook fil. and Thoms. Fl. Br. Ind. I, 57.

Malacca: Maingay (Kew Distrib.), No. 92. Perak; King's collection. Distrib. Java.

Blume describes the carpels as from 3 to 5; but I have never found more than two, and it is difficult to understand how more can come to perfection on the comparatively small torus. In Java this is said often to be a bush from 6 to 8 feet high: in Perak it is a tall tree.

2. CYATHOCALYX MAINGAYI, Hook. fil. and Thoms. Fl. Br. Ind. I, 53. A tree 50 or 60 feet high: young branches rather stout, puberulous, speedily glabrous and dark-coloured. *Leaves* elliptic to oblong, thinly coriaceous, slightly obovate, shortly caudate-acuminate, the base rounded or slightly cuneate; upper surface shining, quite glabrous; the lower puberulous when young, ultimately glabrous; the main nerves 13 to 15 pairs, bold and prominent, spreading, interarching near the edge: length 5.8 to 8.8 in., breadth 2.75 to 3.75 in., petiole .3 in. *Flowers* 2 to 3 in. in diam., solitary or in short, 2- to 3-flowered racemes, axillary or extra-axillary: pedicels .5 to .75 in. long with a large stem-clasping bracteole near the apex. *Sepals* spreading or sub-reflexed, ovate, sub-acute, slightly connate at the base, puberulous on both surfaces, .4 in. long. *Petals* thinly coriaceous, subequal, puberulous, obovate or broadly obovate-lanceolate, blunt, the base with a short claw, pale greenish with a blotch of reddish yellow at the base, all (but especially the inner row) more or less convex, the inner row slightly concave and glabrous at the base inside. *Stamens* numerous, cuneate, short; the connective produced into a broad, flat, orbicular, oblique expansion which overhangs the dorsal linear anthers. *Ovaries* 3, narrowly ovoid, pubescent, ovules about 10 in 2 rows: style short, lateral: stigma large, lobed, villous. *Ripe carpels* 1 or 2, globular, 1.5 to 1.75 in. in diam., slightly tubercular when dry and minutely pubescent. *Seeds* 10 in 2 rows, elongated, compressed. \*

Malacca: Maingay (Kew Distrib.), No. 94. Singapore: Ridley. Perak: King's Collector.

This species is doubtfully referred to *Oyathocalyx* by its authors, and chiefly on the ground that the petals, although valvate at the base, are slightly imbricate above. An examination of the large number of specimens sent from Perak by the Calcutta Botanic Garden Collector enables me to state that in bud the petals are truly valvate, but that as they develop they undoubtedly overlap. The anthers, ovaries and ripe fruit appear to me to be those of *Oyathocalyx*; and in habit and general appearance of its leaves this plant agrees with the other species above described. In addition to the species above described, there are, in the Calcutta Herbarium, fruiting specimens from Perak of a small tree which is apparently a fourth species of *Oyathocalyx*. The leaves of this are oblong-lanceolate to oblong-ovate, 8- to 10-nerved, glabrous above and puberulous beneath; and the ripe carpels are in pairs, ovoid, puberulous, about 1.5 in. long. None of the specimens has any trace of flower.

#### 7. ARTABOTREYS, R. Brown.

Sarmentose or scandent shrubs. *Leaves* shining. *Flowers* solitary or fascicled, generally on woody, usually hooked, recurved branches (peduncles). *Sepals* 3, valvate. *Petals* 6, 2-seriate, bases concave connivent; limb spreading, flat, sub-terete or clavate. *Stamens* oblong or cuneate; connective truncate or produced; anther-cells dorsal. *Torus* flat or convex. *Ovaries* few or many; style oblong or columnar; ovules 2, erect, collateral. *Ripe carpels* berried.—*DISTRIB.* Tropical Africa and Eastern Asia; described species about 32.

This genus is at once distinguished by the curious hooked flower-peduncles. The petals are thick and mostly narrow, concave and closely connivent at the base, while the limb is spreading. The habit of all is scandent. Besides those described below, there are in the Calcutta Herbarium imperfect materials of five undescribed species from Perak, and of one from the Andaman Islands.

*Petals* lanceolate to elliptic.

*Flowers* less than 1 in. long.

*Petals* very fleshy, broadly elliptic, blunt 1. *A. grandifolius*.

„ coriaceous, broadly lanceolate, acuminate ... 2. *A. Scortechinii*.

„ slightly fleshy, elliptic-oblong, obtuse ... 3. *A. pleurocarpus*

*Flowers* about 1 in. long.

\* *Outer petals* ovate-lanceolate; the inner lanceolate or linear ... 4. *A. venustus*.

*Flowers* more than 1 in. long.

- Leaves elliptic to oblong, obtuse or shortly  
and bluntly mucronate, coriaceous ... 5. *A. crassifolius*.  
Leaves oblong, acuminate, coriaceous ... 6. *A. oblongus*.  
Leaves oblong-lanceolate.  
Leaves shortly caudate-acuminate,  
flower nearly 2 in. long ... 7. *A. Lowianus*.  
Leaves shortly acuminate; flower 1·5  
to 1·75 in. long; ripe carpels nar-  
rowly elliptic, tapering to both ends,  
glabrous ... 8. *A. ozycarpus*.  
Limb of petals linear, sub-triquetrous, cylindric, or  
sub-clavate.  
Petals thickly coriaceous, linear, blunt, ad-  
pressed-pubescent ... 9. *A. speciosus*.  
Petals linear-oblong, obtuse, (glabrous?) 10. *A. Muingayi*.  
Petals fleshy, the outer 3 flattened; the  
inner 3 obtusely triquetrous ... 11. *A. gracilis*.  
Petals fleshy, the limb cylindric to clavate 12. *A. suaveolens*.  
Imperfectly known species ... 13. *A. costatus*.  
\* \* \* ... 14. *A. Wrayi*.

1. *ARTABOTRYS GRANDIFOLIUS*, n. sp. King. A powerful creeper 60 to 80 feet long; young branches stout, pale, striate, glabrous. *Leaves* thinly coriaceous, large, minutely pellucid-punctate, pale yellowish-green when dry, elliptic-oblong to elliptic-obovate; the apex broad, obtuse or abruptly sub-acute; the base cuneate: both surfaces glabrous, distinctly reticulate, the upper shining, the lower duller: main nerves 10 to 12 pairs, oblique, inter-arching boldly .25 in. from the edge; length of blade 8 to 14 in., breadth 3 to 5 in.: petiole .4 in., stout. *Petals* very fleshy, densely and minutely tomentose, unequal; the outer 3 broadly elliptic, sub-acute or blunt, slightly concave, .75 in. long and .4 in. broad: inner 3 obovoid, spreading but with incurved apices, slightly shorter than the outer. *Peduncles* (in fruit) nearly 3 in. long, stout: torus hemispheric, 1 in. in diam. *Ripe carpels* numerous, glabrous, lenticellate, elliptic-obovoid, the apex mammillate, narrowed at the base into a short stout pseudo-stalk nearly .5 in. long; length of ripe carpel about 1·5 in., diam. 1 in.: pericarp hard, about .1 in. thick. *Seed* solitary, narrowly ellipsoid, blunt, 1·1 in. long, and 6 in. in diam.; the testa pale, rugulose. *A. macrophyllus*, King MSS. (not of Hook. fil.).

Perak; at Goping, elevation 500 to 800 feet, King's Collector, No. 4477; Scortechini No. 1068.

Some specimens of this were unfortunately distributed from the Calcutta Herbarium under the MSS. name of *A. macrophyllus*,—a name

pre-occupied by an African species described by Sir J. D. Hooker (*Niger Flora*, 207).

2. *ARTABOTRYS SCORTECHINII*, n. sp. King. A climber. All parts except the flower and possibly the fruit glabrous: young branches slender, dark-coloured. *Leaves* thinly coriaceous, ovate-lanceolate, shortly acuminate, the base cuneate; upper surface shining; the lower dull when young, very minutely scaly, afterwards glabrous; main nerves 9 to 11 pairs, spreading, inter-arching .1 in. from the edge, slender but rather prominent beneath: length of blade 2.25 to 3.25 in., breadth .9 to 1.3 in., petiole 2 in. *Peduncle* rather slender, 3- to 4-flowered; pedicels .5 in. ~~long~~, thickened upwards, puberulous, with a small ovate bracteole at the very base. *Flowers* .6 to .8 in. long. *Sepals* very coriaceous, triangular, acuminate, the apices slightly reflexed, conjoined at the base only, rugulose and adpressed-pubescent externally, .25 in. long. *Petals* coriaceous, broadly-lanceolate acuminate, tomentose on both surfaces, the inner three smaller than the outer 3. *Anthers* with broad connective apical appendages. *Torus* rather flat, sericeous: ovaries glabrous. *Fruit* unknown.

Perak, Scortechini.

A species near *A. polygynus*, Miq., but with glabrous leaves and different flowers from that species.

3. *ARTABOTRYS PLEUROCARPUS*, Maingay in Hook. fil. *Fl. Br. Ind.* I, 54. A large climber; all parts except the flowers glabrous; young branches lenticellate, striate, dark-coloured. *Leaves* coriaceous, oblanceolate-oblong, the apex abruptly and shortly acuminate, the base much narrowed: both surfaces shining and reticulate, the upper paler; main nerves about 10 pairs, spreading, slender: length of blade 4 to 6.5 in., breadth 1.5 to 2.25 in.; petiole .15 in., thick. *Peduncles* flat, stout, much hooked, bearing several ebracteolate pedicels, .5 in. long, densely pubescent. *Flowers* 1.5 in. long. *Sepals* broadly ovate, obtuse. *Petals* subequal, flat, elliptic-oblong, obtuse, pubescent on both surfaces, the outer 1 to 1.35 in. long, the inner smaller. *Anthers* with apiculate connectives. *Ovaries* many, slender. *Ripe carpels* broadly elliptic, mammillate, obscurely grooved, narrowed into the short stout stalk, .75 in. long. *Seeds* 2, with hard testa.

Malacca; Maingay. Perak, Scortechini, No. 331.

4. *ARTABOTRYS VENUSTUS*, n. sp., King. A large climber, 30 to 80 feet long; young branches at first puberulous, afterwards glabrous, dark coloured, striate. *Leaves* coriaceous, elliptic to elliptic-oblong, abruptly and shortly acuminate, the base rounded or very slightly narrowed: both surfaces glabrous, the upper shining, the lower dull, adult leaves pale brown (when dry): main nerves 7 to 10 pairs, spreading

or sub-ascending, curved, inter-arching freely '1 to '2 in. from the edge, prominent on the lower, less so on the upper, surface; length of blade 3'5 to 6 in., breadth 2 to 3 in., petiole '2 to '25 in. *Peduncles* extra-axillary, rather slender in flower, (stout in fruit), minutely tomentose, bearing 3 or 4 flowers, '75 to 1 in. long.; pedicels slender, pubescent or glabrescent., from '5 to 1 in. long, ebracteate. *Sepals* coriaceous, broadly triangular, sub-acute, slightly conjoined at the base, sub-reflexed, puberulous externally, glabrous within, '15 in. long. *Petals* coriaceous, minutely tomentose, subequal; the outer 3 with small claw, glabrous inside, ovate-lanceolate sub-acute; the inner 3 shorter than the outer, lanceolate or linear. *Anthers* short, slightly compressed; the apex orbicular, flat. *Ovaries* about 10, oblong, granular. *Carpels* about 6, sessile, narrowly obovoid, apiculate, slightly narrowed to the base, at first puberulous, ultimately glabrous, '15 in. long and '8 in. in diam.; pericarp thin. *Seeds* 2, oblong, plano-convex, about 1 in. long and '6 in. broad, smooth.

Perak; at elevations up to 1,000 feet, King's Collector, Nos. 3725, 4392, 6499, 6968, King's Collector.

5. *ARTABOTRYS CRASSIFOLIUS*, H. f. and T. in Hook. fil. Fl. Br. Ind. I, 54. A large climber; young branches minutely rusty-tomentose. *Leaves* very coriaceous when adult, elliptic to oblong, obtuse or shortly and bluntly mucronate, the base acute or rounded: upper surface glabrous, shining: the lower dull, paler in colour when young, sparsely adpressed-pilose, afterwards glabrous; main nerves 9 or 10 pairs, oblique, when dry faintly impressed on the upper and slightly prominent on the lower surface; length of blade 6 to 6'5 in., breadth 1'75 to 2'75 in.; petiole '3 to '4 in., stout. *Peduncles* flat, much hooked, stout: each with several stout rusty-tomentose pedicels '3 to '4 in. long; bracts few, ovate. *Flowers* 1'25 in. long. *Sepals* ovate-lanceolate, sub-obtuse, softly rusty-pubescent outside, pubescent within. *Petals* coriaceous, oblong-lanceolate, sub-ovate, densely tomentose on both surfaces; the inner 3 smaller than the outer 3. *Fruiting pedicel* very stout; the torus sub-globose. *Ripe carpels* about 8, sessile, sub-obovoid to ovoid, glabrous, slightly rugose, 1'25 to 1'65 in. long and '75 to 1'15 in. in diam.; pericarp thick, pulpy. *Seeds* 2, collateral, oblong, compressed, grooved along the edge, '9 in. long and '6 in. broad. Kurz For. Flora Burma, I, 30.

Burmah; Martaban, King, Brandis. Perak; King's Collector, No. 8384.

6. *ARTABOTRYS OBLONGUS*, n. sp., King. A climber 50 to 70 feet long, ultimately all parts except the inflorescence glabrous; young branches slender, rufous-pubescent; the bark dark-coloured when very young, afterwards rather pale, striate. *Leaves* when adult coriaceous, oblong, shortly acuminate, the base acute, when adult both surfaces



glabrous, the upper shining, the lower dull and when young sparsely pubescent along the midrib; main nerves 10 to 12 pairs, inconspicuous on the upper, slightly prominent in the lower surface, spreading, forming 2 or 3 series of arches within the margin; length of blade 6·5 to 9 in., breadth 2·5 to 3 in., petiole ¼ in. *Peduncles* stout, pubescent when young, bearing 3 or 4 pedicels; flowers 1·35 in. long; pedicels about 1 in., pubescent, slightly thickened upwards. *Sepals* coriaceous, triangular, acute, concave, spreading; rufous-pilose on both surfaces, slightly conjoined at the base, ¼ in. long. *Petals* coriaceous, the portion above the saccate base lanceolate, subacute, strigosely tomentose on both surfaces, the claw partly glabrous and partly covered with minute white hair. *Anthers* compressed, with oblong, obliquely truncate, flattened heads. *Ovaries* few, oblong, glabrous; the stigma broad, oblique. *Fruit* unknown.

Perak; King's Collector, No. 6524.

7. *ARTABOTRYS LOWIANUS*, n. sp., Scortechini MSS. A stout climber; all parts except the flowers glabrous; young branches slender, dark-coloured. *Leaves* thinly coriaceous, oblong-lanceolate, shortly caudate-acuminate, the base cuneate: both surfaces shining, minutely reticulate; main nerves 8 to 10 pairs, spreading, inter-arching ½ in. from the margin, faint; length of blade 3·5 to 6 in., breadth 1·25 to 1·75 in., petiole ¼ in. *Peduncles* extra-axillary, 2- to 3-flowered, glabrous; pedicels thickened upwards, ½ to 75 in. long, glabrous. *Sepals* triangular, acute, glabrous, ¼ in. long, enlarging a little with the fruit. *Petals* fleshy, adpressed-puberulous, olliptic-lanceolate above the concave base, obtuse; the outer three 1·75 in. long, the inner three smaller. *Anthers* with a rounded apical process from the connective. *Ovaries* many, glabrous. *Carpels* (quite young) sessile, ovoid, apiculate; ripe carpels unknown.

Perak; Scortechini; No. 2012.

This species is near *A. pleurogynus*, Miq., but is perfectly glabrous, not sub-strigose pubescent; its ripe fruit is unknown.

8. *ARTABOTRYS OXYCARPUS*, n. sp., King. A stout climber, 60 to 80 feet long; all parts except the flower glabrous; young branches slender, black when dry. *Leaves* oblong-lanceolate, shortly acuminate, the base cuneate, both surfaces shining, reticulate; main nerves 6 to 8 pairs, spreading, slender; length of blade 3 to 5·5 in., breadth 1·25 to 1·5 in. *Peduncles* short (¾ in. long), glabrous, bearing about 2 minutely bracteolate pedicels ¾ in. long. *Flowers* 1·5 to 1·75 in. long. *Sepals* coriaceous, small, broadly ovate, acute, ½ in. long, conjoined at the base, spreading. *Petals* coriaceous, very much longer than the sepals, lanceolate, obtuse; the inner 3 smaller; all adpressed-pubescent, and the

saccate base small in all. *Torus* small, sericeous. *Ovaries* glabrous. *Ripe carpels* numerous, sessile, glabrous, narrowly elliptic, tapering to each end, the apex caudate, 1 to 1·2 in. long and ·4 in. in diam.; pericarp thin. *Seeds* 2, plano-convex, compressed, blunt, ·25 in. long.

Perak; King's Collector, Nos. 5150 and 5605; Wray No. 3286.

This species comes near the Bornean *A. polygynus*, Miq. (Ann. Mus. Lugd. Bat. II, 4). But this species has more pointed and perfectly smooth ripe carpels; while those of *A. polygynus* are more ovoid, with shorter terminal point and have many vertical ridges. *A. polygynus* moreover is sub-strigosely pubescent, this is glabrous.

9. *ARTABOTRYS SPECIOSUS*, Kurz in Hook. fil. Fl. Br. ~~Ind. I, 55.~~  
A large climber: young branches slender, dark-coloured, sparsely adpressed-pilose, afterwards glabrous. *Leaves* coriaceous, oblong or oblong-lanceolate, rarely oblanceolate, shortly and obtusely acuminate, the base acute; both surfaces glabrous, shining: main nerves 7 to 10 pairs, spreading, inter-arching at some distance from the edge, slender: length of blade 6 to 8 in., breadth 2 to 2·5 in., petiole ·25 in. *Peduncles* extra-axillary, flattened, short and not much hooked, puberulous, each bearing several short puberulous 1-flowered ebracteolate flower-pedicels: flowers from 1·25 to nearly 2 in. long, yellow. *Sepals* ·2 in. long, broadly ovate, acute, pubescent outside, glabrous inside. *Petals* thickly coriaceous, adpressed-pubescent, linear above the concave base, rather blunt; the inner smaller than the outer; torus pilose: fruit unknown. Kurz For. Flora, Burm. I, 32.

Andaman Islands; along Middle Straits, Kurz. S. Andaman; at Caddellgunge, King's Collector.

10. *ARTABOTRYS MAINGAYI*, H. f. and T. in Hook. fil. Fl. Br. Ind. I, 55. A powerful creeper, 40 to 80 feet long: all parts glabrous except the flowers; the young branches slender, dark-coloured. *Leaves* thin, elliptic, acuminate at base and apex: both surfaces shining, finely reticulate: main nerves 7 to 9 pairs, spreading, faint: length of blade 3·5 to 6 in., breadth 1·35 to 2 in., petiole ·25 to ·5 in. *Peduncles* flat, much curved, glabrous. *Flowers* 1 in. in diam., fascicled, peduncle ·5 to 1·5 in., hoary-pubescent. *Sepals* small, obtuse, ·2 in. long. *Petals*: the outer linear-oblong, obtuse, concave the saccate base small and sub-orbicular, 1 to 1·25 in. long and ·25 to ·35 broad; the inner smaller and narrower and much curved. *Ovaries* 3 or 4 ovoid, glabrous. *Ripe carpels* sessile, elliptic-globose, mammillate, yellow, glabrous, when ripe 2·5 in., long and 1·5 in. in diam. *Seeds* 2, plano-convex, testa stony.

Malacca; Maingay.

11. *ARTABOTRYS GRACILIS*, n sp. King. A slender woody climber, 60 to 80 feet long: young branches dark-coloured: all parts quite

glabrous except the petals. *Leaves* thinly coriaceous, ovate-lanceolate, shortly acuminate, the base cuneate; both surfaces glabrous and shining, the upper when dry tinged with green: main nerves 7 or 8 pairs, spreading, inter-arching inside the edge, very faint on both surfaces, reticulations rather distinct: length of blade 2·5 to 3 in., breadth 1 to 1·75 in., petiole 15 to 2 in. *Peduncles* extra-axillary, short, much hooked, glabrous, usually 4- to 6-flowered; pedicels 35 in. long, thickened upwards, ebracteolate, glabrous: flower 3 to 4 in. long. *Sepals* very coriaceous, semi-orbicular, slightly pointed at the apex, very little conjoined at the base, concave, spreading. *Petals* fleshy, sub-equal, ~~curved~~ spreading, densely tomentose, the outer 3 flattened; the inner obtusely 3-angled, tumid at the base, smaller than the outer 3. *Anthers* with broad apical connectival processes. *Ovaries* 3 or 4, oblong, with large discoid lobed stigmas, torus villous. *Ripe carpels* 3 or 4, sessile, obovoid, with several vertical ridges, the base contracted, glabrous, 8 in. long and 7 in. in diam. *Seeds* 2, compressed-ovoid, obtuse at each end, shining.

Perak: at low elevations, King's Collector, Nos. 3746, 4987 and 7543.

Allied to *A. suaveolens*, Bl.; but with differently shaped petals, pistils and carpels.

12. *ARTABOTRYS SUAVEOLENS*, Blume Fl. Javae Anon. 62, t. 30, 31D. A climber 20 to 30 feet long; the petals always tomentose, the other parts mostly glabrous, but sometimes the young branches, peduncles, and under surfaces of the midribs of the leaves adpressed-puberulous. *Leaves* thinly coriaceous, oblong-lanceolate to ovate-lanceolate, acute or shortly acuminate, the base acute; both surfaces shining, the reticulations rather distinct, the upper often deeply tinged with green when dry. *Peduncles* extra-axillary, thin at first, but becoming stout and flat with age, glabrous or puberulous, bearing from 5 to 15 flowers; pedicels 3 to 45 in. long, thickened upwards, sparsely adpressed-pubescent, with a small narrowly ovate bract at the base; flowers about 4 in. long. *Sepals* broadly ovate, the apex pointed, thinly coriaceous, sparsely adpressed-pubescent externally, very slightly conjoined at the base, spreading, 1 in. long. *Petals* fleshy, adpressed-tomentose, dilated and thin at the base, the limb cylindric to clavate, sub-erect, slightly spreading, sometimes with the apex incurved. *Anthers* short, with a very broad oblique flattened apical appendage from the connective; torus slightly pubescent. *Ovaries* broadly ovoid, sub-compressed, the stigma small. *Ripe carpels* few, ellipsoid, the apex blunt, the base slightly contracted, smooth, glabrous, 4 to 5 in. long and 25 in. in diam.; pericarp thin, fleshy. *Seed* single, ellipsoid, blunt at each end, the testa granular. Wall. Cat. 6416; H. f. & T.

Fl. Ind., 129; Hook. fil. Fl. Br. Ind. I, 55; Miq. Fl. Ind. Bat. I. Pt. 2, 39 Ann. Mus. Lugd. Bat. II, 43; Kurz For. Fl. Burm. I; *Artabotrys parviflora*, Miq. Fl. Ind. Bat. Supp., 375. *Unona suaveolens*, Blume Bijdr. 17.

In all the Malayan Provinces at low elevations: common. Sylhet to Malacca in British India.

This species varies somewhat as to size of flowers and texture of leaf. The form named *A. parviflora* by Miq. in his Sumatra Supplement was, by himself, subsequently reduced to a variety of this species (Ann. Mus. Lugd. Bat. II, 38).

13. *ARTABOTRYS COSTATUS*, n. sp. King. A climber ~~from 10 to 80~~ feet long: young branches slender, dark-coloured, scantily tawny-puberulous when young, afterwards glabrous. *Leaves* thinly coriaceous, elliptic-oblong, slightly oblanceolate, abruptly and shortly acuminate, the base cuneate; upper surface shining, glabrous except the lower part of the midrib which is tomentose; lower surface paler, dull, sparsely puberulous towards the base when young, afterwards glabrous; main nerves 12 to 14 pairs, spreading, forming one series of very bold arches .3 in. from the margin, with a series of smaller arches outside it, very stout and prominent on the lower, slightly so on the upper, surface, reticulations distinct on both: length of blade 7 to 9 in., breadth 2.5 to 3.25 in., petiole .2 in. *Peduncles* rather small, much hooked. *Flowers* unknown. *Carpels* (*unripe*) 2 to 5, sessile, ellipsoid, blunt at each end, about 1 in. long and .6 in. in diam. (*unripe*), glabrous: pericarp thin; seeds 2, elliptic.

Perak; on Ulu Bubong at elevations of from 500 to 800 feet, King's Collector, Nos. 4291 and 10184.

I have ventured to describe this although its flowers are unknown, and the only fruit collected is unripe. By its oblong, costate leaves it differs from every other described *Artabotrys* except *A. macrophyllus*, mihi.

14. *ARTABOTRYS WRAYI*, King. A climber: young branches rather stout, softly pale rusty-tomentose; ultimately glabrous pale and furrowed. *Leaves* thinly coriaceous, large, oblong-elliptic to elliptic, shortly acuminate, the base rounded; both surfaces boldly reticulate; the upper glabrous and shining, sub-bullate when dry; the lower shortly and rather softly cluereous-pubescent; main nerves 10 to 12 pairs, oblique, curving, inter-arching freely within the edge, depressed above and bold and prominent beneath like the midrib; length 8 to 11 in., breadth 2.75 to 5 in., petiole .35 in., stout, tomentose when young, glabrescent when old. *Peduncles* extra-axillary, rather short, very thick in fruit, sometimes straight when young and curving only when in fruit, few-flowered, brous; pedicels 1 in. long, stout, softly tawny-tomentose with several

bracteoles at the base. *Flowers* 1 in. long. *Sepals* broadly ovate at the base, tapering rapidly upwards, acuminate, about .5 in. long, densely sericeous-tomentose outside, sub-glabrous inside especially at the base. *Petals* thick, sub-equal, ovate-oblong,\* sub-acute, slightly contracted above the claw, softly adpressed-sericeous except on the glabrous concavity of the claw inside. *Ovaries* numerous. *Ripe carpels* obovoid, tapering much to the base, the apex mucronate, densely tawny-tomentose, sessile; nearly 1 in long.

Perak; Wray, King's Collector.

Next to *A. grandifolius*, this has the largest leaves of any of the Asiatic species of the genus, but from that species it differs in having them pubescent beneath. Only a single flower has hitherto been collected.

#### 8. DREPANANTHUS, Maingay MSS.

*Trees*. *Leaves* large, pubescent beneath. *Racemes* very short, fasciated on woody truncal tubercles. *Sepals* 3, nearly free. *Petals* 6, valvate, 2-seriate, subequal; bases concave, connivent; limb erect or spreading, broad or narrow. *Stamens* many, cuncate, truncate; anthers linear, cells lateral; connective very slightly produced. *Ovaries* 4-12; stigma sub-sessile; ovules 4 or more, 2-seriate. *Ripe carpels* globose, several-seeded. Two species.

This genus differs from *Artabotrys* in its members being trees, not climbers; and in having 4 or more ovules in its ovaries. Dr. Scheffer (Ann. Jard. Bot. Buitenzorg II, 6) proposed to make it a section of *Cyathocalya*.

*Petals* of both rows with more or less ovate limb 1. *D. pruniferus*.

" " with narrowly cylindric limb 2. *D. ramuliflorus*.

1. DREPANANTHUS PRUNIFERUS, Maing. in Hook. fil. Fl. Br. Ind. I, 56. A tree 40 to 50 feet high; branches stout, rufous-pubescent at first, finally glabrescent. *Leaves* coriaceous, elliptic to elliptic-oblong, acute or obtuse, the base rounded or sub-cordate, often unequal; upper surface glabrous, except the depressed tomentose midrib and main nerves; lower surface shortly rufous-pubescent when young, glabrescent when adult; main nerves 14 to 16 pairs, prominent beneath; intermediate nerves stout, parallel, oblique; length 7.5 to 14 in., breadth 3 to 6.5 in.; petiole .5 to 1.5 in. stout, channelled. *Racemes* 6- to 8-flowered, crowded; flowers .75 in. long, their pedicels rufous-tomentose, .5 to .75 in. long, each with a large oblanceolate bract. *Sepals* and *petals* subequal, very coriaceous, densely covered (except the inside of the claws of the petals) with a layer of minute whitish tomentum; sepals united by their base, ovate-oblong, spreading; petals of outer row broadly ovate,

sub-acute, slightly constricted above the claw; those of the inner row closely connivent, much constricted above the claw, their apices broad and emarginate. *Ovaries* oblong, sericeous-tomentose. *Ripe carpels* 6 to 8, sessile, sub-globose, minutely pubescent to glabrescent, 1 to 1.25 in. in diam. *Seeds* numerous, oblong, flat, shining.

Malacca: Maingay (Kew Distrib.) No. 90. Perak; King's Collector, Scortechini. Ponaug, Curtis No. 1417.

2. *DREPANANTHUS RAMULIFLORUS*, Maing. Hook. fil. Fl. Br. Ind. I, 56. A tall tree, the young branches as in *D. pruniferus*. *Leaves* as in *D. pruniferus*, but slightly broader at the apex and narrowed at the base. *Flowers* 4 to 5 in long, much crowded in very short ~~fascicles~~ from tubercles on the branches below the leaves: pedicels about 3 in. long stout, rufous-tomentose as is the single sub-orbicular bracteole. *Sepals* much shorter than the petals, broadly triangular, acuminate, spreading, rufous-tomentose especially outside. *Petals* with concave, connivent, tomentose claw and fleshy, sub-cylindric, spreading, much curved, adpressed-pubescent limbs. *Ovaries* about 5, sessile, oblong. *Carpels* (young) ovoid, slightly oblique, densely rufous-tomentose; walls of pericarp very thick: seeds few: ripe fruit unknown.

Malacca: Maingay (Kew Distrib.), No. 91. Distrib. Sumatra; Forbes, No. 2913.

### 9. *CANANGIUM*, Baill. (*Cananga*, Rumph.)

Tall trees. *Leaves* large. *Flowers* large, yellow, solitary or fascicled on short axillary peduncles. *Sepals* 3, ovate or triangular, valvate. *Petals* 6, 2-seriate, subequal or inner smaller, long, flat, valvate. *Stamens* linear, anther-cells approximate, extrorse; connective produced into a lanceolate acute process. *Ovaries* many; style oblong (or 0?); stigmas sub-capitate; ovules numerous, 2-seriate. *Ripe carpels* many, horrid, stalked or sessile. *Seeds* many, testa crustaceous, pitted, sending spinous processes into the albumen.—Two species.

The tree known as *Cananga odorata* H. f. and T. was by Rumphius (who wrote an account of it in Herb. Amb. II, 195, published in 1750) named *Cananga* (Latinice) and *Bonga Cananga* (Malaice). Rumphius' description is of the usual pre-Linnean sort, there being no differentiation of generic and specific characters and his name of course is not binomial. In the chapter of his book following that in which *Cananga* proper is treated of (l. c. p. 197), Rumphius proceeds to describe the wild *Canangas* as distinguished from the *Cananga* proper, which was in his time, (as it is still) much cultivated by the Malays on account of the fragrance of its flowers. These wild *Canangas* Rumphius calls *Canangæ sylvestres* and of them he distinguishes three sorts.

1. *Cananga sylvestris prima sive trifoliata* (Malaice Oetan).
2. *Cananga sylvestris secunda sive angustifolia*.
3. *Cananga sylvestris tertia sive latifolia*.

Of the first two Rumphius gives figures on t. 66 of the same volume; and judging from these figures, the plants fall into the modern genus *Polyalthia*.

Linnæus' *Species Plantarum* was published in 1753, therefore Rumphius' names are in point of time, as they are in point of form, pre-Linnæan. Linnæus does not accept *Cananga* as a genus and he refers to the *Cananga* of Rumphius only in a note under *Uvaria Zeylanica*. And the first botanists to adopt the *Cananga* of Rumphius as a genus are Hook. fl. and Thomson (in Fl. Ind. 130). But in 1775 Aublet (in his *Histoire des Plantes de la Guiane Francoise*,) published, in regular Linnæan fashion, the genus *Cananga* for the reception of a single species named *C. ouregow* of which he gave a figure (t. 244). Nineteen years later (1794) Ruiz and Pavon, (in their *Prodromus Floræ Peruvianæ et Chilensis*,) published under the name of *Guatteria* a genus with exactly the same characters as Aublet's *Cananga*. Unless therefore Hook f. and Thomson are right in making a special case in establishing, as a genus in the Linnæan sense, the *Cananga* of Rumphius, Aublet's genus *Cananga* must stand, and to it must be relegated all the American species referred to Ruiz and Pavon's genus *Guatteria*. Authorities vary in their treatment of the *Cananga* of Rumphius. Dunal (in his *Mono-graphie de la famille des Anonacees*) pronounces for the suppression of Aublet's *Cananga* in favour of that of Rumphius who, he incorrectly says, assigned two species to it; the fact being as already shown, that Rumphius divided *Cananga* into (a) cultivated (with one sort) and (b) wild (*sylvestres*) with three sorts. Dunal (and I think wrongly) refers all the *Cananga* of Rumphius to *Unona*. In their *Genera Plantarum*, Mr. Bentham and Sir J. D. Hooker retain the *Cananga* of Rumphius and reduce *Cananga* of Aublet to *Guatteria*. Baillon, on the other hand, retains the *Cananga* of Aublet as a genus, and to it refers all the S. American species of *Guatteria*. He reduces *Cananga odorata* H. f. and Th. to *Unona* and, altering the termination of its generic name, he makes it a section of *Unona* under the sectional title of *Canangium*.

The grounds for separating *Cananga* from *Unona* as a genus are thus stated by the authors of the *Flora Indica*. "In habit and general appearance this genus closely resembles *Unona*; but the indefinite ovules prevent its being referred to that genus. The peculiar stamen (with a long conical apical point) and the seeds are themselves, we think, sufficient to justify us in distinguishing it as a genus." The simplest solution of the synonymy knot, and one for which there is some justi-

fication on the ground of structure, appears to lie in the acceptance of Baillon's suggested name, giving up that of the authors of the *Flora Indica*.

The synonymy of *Guatteria* is further complicated by the fact that a large number of species with valvate aestivation were referred to it by Wallich and others. These, however, were separated by Hook. fil. and Thoms. by whom the genus *Polyalthia* was formed for their reception. Sir Joseph Hooker refers to *Cananga*, not only the species *O. odorata*, but another named *O. virgata*. The latter plant appears to me, in the light of full material recently received, to be a typical *Cyathocalya*, and to that genus I have ventured to remove it. A third species ~~doubtfully~~ referred to the genus *Cananga* under the specific name *monosperma*, appears to me from the description (I have seen no good specimen) to be so doubtful that I exclude it altogether. The seeds both of this species and of *O. Odoratum* are peculiar; I quote the following excellent description of those of *O. odoratum* from Hooker fil. and Thomson's *Flora Indica*, page 130. "The seeds are pitted like those of the section *Kentia* of *Melodorum*, and of some *Cucurbitaceæ*; and the inner surface of the brownish-yellow, brittle testa is covered with sharp tubercles, which penetrate into the albumen, taking the place of the flat plates which are found in the rest of the order."

Flowers 2 or 3 in. long                   ...                   ... 1 *C. odoratum*.  
 „ 1 to 1·25 in. long                   ...                   ... 2 *C. Scortechinii*.

1. *CANANGIUM ODORATUM*, Baill. Hist. des Plantes, I, 213 (*in note*). A tree 30 to 60 feet high; young branches rather slender, sub-striate, at first puberulous, slightly lenticellate, dark ashy-coloured when dry. *Leaves* membranous, ovate-oblong or oblong-lanceolate, sometimes broadly elliptic, acute, shortly acuminate or sub-obtuse; the base rounded or sub-cuneate, unequal; quite glabrous, the midrib and nerves puberulous; main nerves about 8 pairs, ascending, rather straight and slender: length 3·5 to 8 in., breadth 1·75 to 3 in., petiole ·5 in. *Flowers* 2 to 3 in. long, drooping, in 2- to 3-flowered shortly pedunculate racemes: pedicels slender, 1·5 to 2 in. long, recurved, puberulous, with one median and several basal, small, often deciduous bracts. *Sepals* free or joined at the base only, about ·35 in. long, triangular, tapering to a blunt point, reflexed. *Petals* linear-lanceolate, 3 to 3·25 in. long and ·3 in. wide, adpressed-sericeous when young. *Ovaries* sessile, narrowly oblong: stigma hemispheric. *Ripe carpels* from 10 to 12, pedicellate, oblong-obovoid, glabrous, blunt, ·65 to ·9 in. long, nearly black when ripe, pulpy: stalks from ·5 to ·75 in. long. *Seeds* 6 to 12, flattened, sub-ovate. *Cananga odorata*, H. f. and Th. Fl. Ind. 180; Fl. Br. Ind. I, 56; Miq. Fl. Ind. Bat. I, Pt. 2, 40. Kurz For. Fl. Burm. I, 3. *Uvaria odorata*,



Lamb. Ill. t. 495, f. 1; Roxb. Fl. Ind. ii. 661; Wall. Cat. 6457; W. & A. Prodr. 8; Blume Bijdr. 14, Fl. Jav. Anon. t. 9. Pierre Flore For. Coch. Chine, Anon. t. 18; Griff. Notul. iv. 712. *U. frakta*, Wall. Cat. 6460. *U. axillaris*, Roxb. Fl. Ind. ii. 667. *Unona odorata* and *U. leptopetala*, Dunal Anon. 108 and 114; DC. Prodr. i. 90 and 91; Deless. Ic. Sel. t. 88.

In all the provinces, planted. Indigenous in Tenasserim, Java, and the Philippines.

2. *CANANGIUM SCORTECHINII*, King n. sp. A tree 30 to 40 feet high: young branches puberulous but speedily glabrous, dark-coloured and ~~lenticulate~~. Leaves membranous, broadly ovate, sub-acuminate, the base broad rounded, slightly oblique; both surfaces pubescent when very young, ultimately glabrescent, the midrib and 6 or 7 pairs of nerves adpressed-pubescent, glandular-dotted; length 2·5 in., breadth 1·5 in. (fide Scortechini; length 3 to 7 in., breadth 2 to 3 in.) Oymes short, from the axils of leaves or of fallen leaves, few-flowered, shortly pedunculate. Flowers 1 to 1·25 in. long; pedicels under 1 in., pale-pubescent with a narrow, ovate, obtuse, mesial bracteole ·25 in. long. Sepals ovate, sub-acute, recurved, minutely yellowish-pubescent, ·35 in. long. Petals subequal, linear-obtuse, 1·25 in. long; the claw short, thickened, pubescent on both surfaces like the sepals. Stamens numerous; the connective with an apical process, bulbous at the base, suddenly tapering into a sharp point. Ovaries numerous, oblong, glabrous except at the pubescent base, with 6 or 8 ovules in two rows; stigma sessile, truncate. Ripe carpels unknown.

Perak: Scortechini.

Scortechini's specimens are in bud only and none of them has any fruit. The foregoing description has been prepared partly from his notes and partly from his specimens. The species differs from *C. odoratum* in having smaller leaves, a different inflorescence, with smaller, quite inodorous, flowers. It is also a smaller tree.

*Doubtful Species.*

*Cananga? monosperma* H. f. and Th. Fl. Br. Ind. I, 57. Of this I have seen only leaf-specimens.

#### 10. *UNONA*, Linn.

Trees or shrubs, erect or climbing. Flowers often solitary, axillary terminal or leaf-opposed. Sepals 3, valvate. Petals 6, valvate or open in aestivation, 2-seriate; 3 inner sometimes absent. Torus flat or slightly concave. Stamens cuneate; anther-cells linear, extrorse, top of connective sub-globose or truncate. Ovaries numerous; style ovoid or oblong, recurved, grooved; ovules 2-8, 1-seriate (rarely sub-2-seriate). Ripe

*carpels* many, elongate and constricted between the seeds or baccate.  
*Seeds* few or many.—*DISTRIB.* Tropical Asia and Africa; species about 50.  
 Sect. I. *Desmos*, H. f. and T. Petals 6, in two rows, ripe carpels jointed.

Flowers solitary and always axillary: leaves  
 elliptic-oblong to oblong-lanceolate ... 1. *U. Dunalii*.

Flowers solitary, and extra-axillary, terminal  
 or leaf-opposed.

Flower-peduncles 4 to 6 in. long, slender ... 2. *U. Desmos*.

Flower-peduncles 1 to 2 in. long.

Lower surfaces of leaves glaucous;

petals glabrous or at most sparsely

adpressed-sericeous ... 3. *U. discolor*.

Flower-peduncles from .5 to 1 in. long.

Leaves more or less oblong or ovate or

lanceolate, rufous-pubescent or to-

mentose beneath ... 4. *U. dumosa*.

Sect. II. *DASYMASCHALON*. Petals 3, or sometimes only 2: the inner  
 row always absent; ripe carpels jointed.

Flowers 3.5 to 6 in. long; petals linear-lanceo-

late, caudate-acuminate, not constricted be-

tween claw and limb ... 5. *U. longiflora*.

Flowers 1.5 to 3.5 in. long; petals from ovate

to lanceolate, more or less constricted above

the claw ... 6. *U. Dasymaschala*

Sect. III. *STENOPETALON*. Petals 6 in two rows, usually very narrow:  
 carpels baccate, not jointed.

Flowers solitary ... 7. *U. Wrayi*.

Flowers in fascicles from the larger branches  
 or stem.

Petals linear-oblong, 1 to 1.5 in. long; ripe

carpels globose, glabrous, their stalks 1

to 1.5 in. long ... 8. *U. desmantha*.

Petals narrowly linear, 3 to 3.5 in. long:

ripe carpels globose, densely rufous-

velvety, shortly stalked ... 9. *U. crinita*.

Petals narrowly linear, 1.25 to 3 in. long:

ripe carpels sub-globular or bluntly ovate,

softly tomentose, ultimately sub-glabrous,

sub-sessile ... 10. *U. stenopetala*.

1. *UNONA DUNALII*, Wall. Cat. 6425. A climber 60 to 100 feet  
 long; young branches slender, rather pale, sub-rugose, lenticellate,  
 glabrous. Leaves thickly membranous, pale when dry, elliptic-oblong

to oblong-lanceolate, acute or shortly acuminate, the base rounded, the upper surface glabrous, shining, the lower slightly glaucous, sometimes with a few scattered hairs on the midrib; main nerves 10 to 12 pairs, spreading, not prominent; length 3 to 4 in., breadth 1·2 to 1·75 in., petiole ·2 in. *Flowers* axillary, solitary, 1·25 to 1·4 in. long; pedicels ·35 to ·5 in. long, slender, pubescent, with a minute bracteole about the middle. *Sepals* broadly ovate, acute, puberulous, reflexed, ·25 to ·3 in. long. *Petals* narrowly oblong-lanceolate, sub-acute, puberulous to glabrous, 1 to 1·25 in. long, the inner row smaller. *Ripe carpels* numerous, stalked, glabrous, constricted between the 3 to 5 ovoid joints, 1·25 to 1·75 in. long; the stalks about 1 inch. Hook. fil. and Th. Fl. Ind. 131, (excl. the Concan plant); Miq. Fl. Ind. Bat., I. Ft. 2, 41; Hook. fil. Fl. Br. Ind. I, 58.

Penang; Wallich. Perak; King's Collector.

2. *UNONA DESMOS*, Dunal Anon., 112. A spreading shrub, often climbing; young branches slender, striate, adpressed, rufous-pubescent, often lanceolate. *Leaves* thinly coriaceous, oblong, acute or acuminate, the base rounded; upper surface glabrous or nearly so, the midrib sparsely pubescent; under-surface paler in colour, puberulous or pubescent; main nerves 12 to 14 pairs, spreading, rather prominent beneath; length 4·8 to 8·8 in., breadth 1·65 to 3·25 in., petiole ·35 in. *Flowers* solitary, extra-axillary, 1·35 to 1·75 in. long; peduncle slender, 4 to 6 in. long, glabrous; bracts few, lanceolate, minute, deciduous. *Sepals* ovate-acuminate, spreading, adpressed-pubescent, ·3 in. long. *Petals* coriaceous, ovate-lanceolate, adpressed-pubescent, 4-nerved; the outer 2 in. long by about ·85 in. broad; the inner smaller. *Ripe carpels* numerous, stalked, ·5 to ·75 in. long, glabrous, constricted between the 2 to 3 oval joints. H. f. and T. Fl. Ind. 134; Miq. Fl. Ind. Bat. I, Pt. 2, 42; Hook. fil. Fl. Br. Ind. I, 59; Kurz For. Fl. Burm. I 34. *U. cochinchinensis* A. DC Prod. I, 91; *U. pedunculosa*, A. DC Mem. Anon 28; *U. pedunculosa* Wall. Cat. 6422. *U. fulva*, Wall. Cat. 6427. *Desmos cochinchinensis* Lour. Fl. Coch. Ch. I, 352. *U. discolor*, Wall. (not of Roxb.) Cat. 6420 D and E.

From Assam to Singapore. Distrib. Cochin-China.

3. *UNONA DISCOLOR*, Vahl Symb. II, 63, t. 36. A spreading shrub, often also climbing; young branches slender, sub-rugose, pubescent towards the tips. *Leaves* membranous, oblong or oblong-lanceolate, acute, the base rounded; upper surface glabrous, shining; the lower glaucous, glabrous or pubescent; main nerves 8 to 10 pairs, sub-ascending, slightly prominent beneath; length 3 to 7·5 in., breadth 1 to 2 in., petiole about ·25 in. *Flowers* solitary, extra-axillary, 2 to 2·5 in. long; peduncles 1 to 2 in. long, rather slender, pubescent, with a minute linear

bracteole below the middle; thickening when in fruit and lenticellate. *Sepals* ovate-lanceolate, spreading, nearly glabrous, .4 to .6 in. long. *Petals* coriaceous, narrowly lanceolate, 2 to 2.5 in. long, glabrous or sparsely adpressed-sericeous. *Ovaries* oblong, hairy. *Stigma* laterally grooved. *Ripe carpels* numerous, stalked, .75 to 1.5 in. long, glabrous or pubescent, the constrictions between the 2 to 5 oval joints pubescent; stalks .25 in. long. Dunal Anon. 111; DC. Prodr. i. 91; Wall. Cat. 6420 (*partly*); Roxb. Fl. Ind. ii. 669; W. & A. Prodr. 9; H. f. & T. Fl. Ind. 183; Miq. Fl. Ind. Bat. I, Pt. 2, 41; Beddome Ic. Pl. Ind. Or. t. 51; Bl. Fl. Javæ Anon. 53; A. DC. Mem. 28; W. and A. Prodr. 9; Thwaites Enum. 9; Kurz For. Fl. Ind. Burm. I. 34; Hook. ~~fl. Pl. Ind.~~ I, 59. Scheff. Obs. Phyt. Anon. 5. Nat. Tidsch. Ned. Ind. XXXI, 5. *U. cordifolia*, Roxb. Fl. Ind. II, 602? *U. Dunalii*, H. f. & T. Fl. Ind. 131 (the Concan plant); Dalz. & Gibs. Fl. Bomb. 3 (not of Wallich). *U. Amherstiana*, A. DC. Mem. 28. *U. biglandulosa*, Bl. Bijdr. 16. *U. Roxburghiana*, Wall. Cat. 6423 B. *U. Lessertiana*, Dunal Anon. 107. t. 26; DC. Prodr. I, 90. *Desmos chinensis* Lour. Fl. Coch. Ch. 1, 352.

Of this variable and abundant species, Sir Joseph Hooker distinguishes four varieties as follows:—

Var. 1, *pubiflora*; leaves 5–7 in., oblong acute, base often cordate, flowers silky.

Var. 2, *lævigata*; leaves 3–4 in., oblong or lanceolate, acute, base rounded, flowers almost glabrous.—*U. chinensis*, DC. Prodr. i. 90. *U. undulata*, Wall. Pl. As. Rar. iii. and 42. *U. discolor*, Dalz and Gibs, Fl. Bomb. 3. t. 265; Wall. Cat. 6428.—Perhaps cultivated only in India, common in the Archipelago and China.

Var. 3, *pubescens*; leaves as in 1, but densely pubescent beneath.

Var. 4, *latifolia*; leaves 3–5 by 2–2½ in., broad-oval, acute, flowers silky. *U. discolor* and var. b, *bracteata* Bl. Fl. Jav. Anon. 53, t. 26 and 31A.

From the base of the eastern Himalaya through the Assam range to Burmah and the Malayan Peninsula; in tropical forests. Distrib. The Malayan Archipelago, Chinese Mountains.

4. *UNONA DUMOSA*, Roxb. Fl. Ind. II, 670. A large bushy climber: young branches slender, softly rufous-tomentose. *Leaves* membranous, broadly ovate to oblong-ovate, obovate to oblanceolate-oblong, obtuse, sub-acute or broadly mucronate, the base rounded or sub-cordate, or sub-cuneate; when young rufous-tomentose on both surfaces; the upper except the midrib glabrescent when old: main nerves 10 to 12 pairs; sub-ascending, rather straight; length 2 to 5.25 in., breadth 1.25 to 2.5 in.; petiole .15 in., to 3 in., rufous-tomentose. *Flowers* solitary, leaf-opposed or extra-axillary, 2 to 2.5 in. long; pedicels .5 to .75 in. long,

rufous-tomentose, with a single ovate bract near the base. *Sepals* coriaceous, cordate or ovate, sub-acute or acute, spreading, rufous-tomentose,  $\frac{1}{4}$  in. long. *Petals* obovate-spathulate to broadly ovate-lanceolate, tapering to each end, vertically nerved, densely pubescent at first, less so when old; the inner row smaller. *Ripe carpels* numerous, stalked, glabrous,  $\frac{1}{75}$  to  $\frac{1}{4}$  in. long, much constricted between the 2 to 3 ovoid joints. *Seeds* shining, the albumen with transverse fibres. Wall. Cat. 6429. H. f. and Th. Fl. Ind. 131; Hook. fil. Fl. Br. Ind. I, 59.

Malacca: Maingay, Nos. 42 and 43 (Kew Distrib.). Perak; King's Collector, L. Wray Junior. Sylhet; Roxburgh, Wallich. Assam; Simons. The form which occurs in the Malayan Peninsula has narrower petals than that which is found in Assam and Silhet, and its leaves are more oblong and less ovate.

5. *UNONA LONGIFLORA*, Roxb. Fl. Ind. II, 668. A glabrous shrub or small tree, the leaf-buds silky; young branches slender. *Leaves* membranous, narrowly oblong or oblong-lanceolate, more or less acuminate, the base rounded or slightly cuneate; upper surface shining, the lower glaucous: main nerves 12 to 16 pairs, oblique, rather prominent beneath: length 6.5 to 11 in., breadth 1.75 to 3.25 in., petiole  $\frac{1}{4}$  in. *Flowers* solitary, pedunculate, axillary, pendulous, 3.5 to 6 in. long; the peduncles minutely bracteolate and jointed near the base, slender, from 1.25 to 8 in. long, still longer in fruit. *Sepals* very small, broadly triangular, spreading, mucronate, rufous-pubescent externally. *Petals* linear-lanceolate, much acuminate, cohering by their margins, the base slightly expanded, no constriction between the limb and claw, adpressed-sericeous when young but afterwards glabrous, yellowish; the inner row absent. *Stamens* with the connective produced and truncate at the apex. *Ovaries* 10 to 20, sessile, hairy; *ovules* few: stigmas large, recurved. *Ripe carpels* about 10, stalked, moniliform, 3- to 4-jointed, all the joints except the lowest often falling off: individual joints elongated-ovoid,  $\frac{1}{5}$  in. long, glabrous. *Seeds* with thin smooth testa, the albumen intersected by numerous horizontal fibrous processes. Wall. Cat. 6419; Hook. fil. and Th. Fl. Ind. 134; Hook. fil. Fl. Br. Ind. I, 61; Kurz Fl. Burm. I, 35.

Perak; in forests under 3,000 feet. E Himalaya; Assam; Khasia Hills, Chittagong.

Most of the specimens which I have seen from Assam, the Khasia Hills, and Chittagong have flower-pedicels under 2 inches long, and petals quite 6 inches long. Specimens from Perak, on the other hand, have shorter flowers (3 to 4 in. long); and much longer (5 or 6 in.) and more slender peduncles: otherwise the two sets agree. In many of the flowers from both sets of localities there are only two petals.

6. *UNONA DASTMASCHALL*, Blume Fl. Jav. Anon. 55, t. 97. An erect or sarmentose shrub: young branches sometimes glabrous from the beginning, but usually at first softly rufous-pubescent and sometimes permanently so. *Leaves* thinly coriaceous, elliptic-oblong, oblong, or oblong-lanceolate or oblanceolate, acute or shortly acuminate, the base rounded or narrowed; upper surface glabrous; the lower sub-glabrous, glabrous or sometimes puberulous on the midrib and nerves; length 4·5 to 8·5 in., breadth 1·5 to 3 in., petiole about 1 in. *Flowers* pedunculate, solitary, axillary, pendulous, 1·5 to 3 in. long; peduncles 1·25 to 1·75 in. (longer in fruit), minutely bracteolate at the very base. *Sepals* fleshy, very short, broadly triangular, pubescent, reflexed. *Petals* fleshy, varying from ovate-acute to lanceolate-acuminate, concave and (in the narrower forms) expanded at the base, with a constriction between the claw and limb; the edges united when young, adpressed-puberulous but ultimately glabrous. *Anthems* with the connective expanded at the apex and oblique. *Ovaries* densely villous; the stigma narrow, glabrous. *Ripe carpels* numerous, shortly stalked, moniliform, pubescent to glabrous, the joints oval, about 35 long. *Seeds* oval, smooth, the albumen with fibrous processes. A. DC. Mem. Anon. 28; Wall. Cat. 6421; Hook. fil. and Thoms. Fl. Ind. 135; Miq. Fl. Ind. Bat. I, Pt. 2, 42; Kurz Fl. Burm. I, 36; Hook. fil. Fl. Br. Ind. I, 61. Scheff. Obs. Phyt. Anon. 6; Nat. Tidsch. Ned. Ind. XXXI, 6.

From Burmah to Singapore; the Andaman Islands. Distrib.—Sumatra, Java.

Var. *Blumei*, Hook. fil.; branches glabrous; leaves pale-yellowish or grey beneath, glabrous or nearly so. Wall. Cat. 6420 B. (*U. discolor*.)

Var. *Wallichii*, Hook. fil.; branches brown-tomentose; lower surfaces of leaves glaucous and tinged with purple.

This species, in the absence of the inner row of petals and in other respects, resembles *M. longiflora*, Roxb.; but the outer petals are neither so long nor so narrow, and there appear always to be three of them, and not often only two as in *M. longiflora*. The peduncles are moreover shorter. The two species, however, are closely allied. In open, exposed situations this is a non-scandent bush; but under the shade of trees, it often develops into a climber,—a habit which it shares with many species of this family. Blume's figure of this plant (quoted above) is inaccurate as respects the flowers and fruit.

7. *UNONA WRAYI*, Hemsl. in Hook. Ic. Plant t. 1553. A tree: young branches slender, tawny-tomentose. *Leaves* thickly membranous, elliptic-oblong, shortly acuminate, often obtuse (from the breaking off of the acumen), slightly narrowed to the rounded base; upper surface glabrous except the puberulous midrib; lower much reticulate,

puberulous, the midrib pubescent : main nerves 8 to 10 pairs, rather prominent beneath, spreading, and forming two sets of intra-marginal arches : length 5·5 to 7·5 in., breadth 2 to 2·65 in. ; petiole 2 in., tomentose. *Flowers* 3 to 3·5 in. long, solitary or in fascicles from tubercles on the larger branches : pedicels 75 to 9 in., slender. *Sepals* ovate-lanceolate, sub-acute, about 3 in. long, puberulous. *Petals* white changing to deep claret, subequal, rather coriaceous, linear-lanceolate, acuminate, about 3 in. long, sparsely puberulous outside : breadth about 3 in. *Ovaries* numerous, pubescent, with about 4 ovules. *Ripe carpels* red when ripe, stalked, slightly pulpy, ovoid or oblong, obtuse, glabrous, 1 to 1·25 in. long, ~~stalks~~ 5 to 75 in. long. *Seeds* about 3, oval, compressed, rugulose, aromatic, 6 in. long.

Singapore ; Maingay (Kew Distrib.), No. 51. Perak ; Wray, No. 560 ; King's Collector. Distrib.—Java.

8. *UNONA DESMANTHA*, H. f. and T. in Hook. fil. Fl. Br. Ind. I, 61. A small tree : youngest branches with soft yellowish-brown pubescence, the older with smooth, shining, yellowish-brown bark. *Leaves* coriaceous, elliptic-oblong, or elliptic-lanceolate, or oblanceolate, shortly and acutely or obtusely acuminate, the base acute ; upper surface glabrous except the pubescent midrib ; under-surface paler, puberulous especially on the midrib and nerves : main nerves 8 to 11 pairs, rather prominent beneath when dry, oblique. *Flowers* 2·5 in. diam., pale red, densely crowded on 1 to 2 in. broad flat tubercles on the older branches : peduncles 75 in., puberulous, ebracteolate. *Sepals* ovate, acute, 3 in. long. *Petals* unequal, linear-oblong, tapering to the apex, the base not dilated, sparsely pubescent, 1 to 1·5 in. long ; the inner rather narrower. *Torus* and *ovaries* as in *U. pycnantha*, but ovules 3 to 5, superposed. *Ripe carpels* stalked, globose, dark-coloured, glabrous, nearly 1 in. in diam. : stalk 1 to 1·5 in.

Malacca : Maingay (Kew Distrib.), No. 48.

9. *UNONA CRINITA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 61. A tree ? young branches slender ; their bark pale, rugose ; the youngest densely rufous-tomentose. *Leaves* membranous, oblong, elliptic-oblong or oblanceolate-oblong, acute or acuminate ; the base rounded ; upper surface quite glabrous, the lower pubescent especially on the nerves and veins : the midrib tomentose on both surfaces ; main nerves 10 to 12 pairs, slender, but slightly prominent beneath : length 3 to 8 in., breadth 1·25 to 2·5 in. ; petiole 15 in., tomentose. *Flowers* 3 to 5 in. long, pedicellate, in dense crowded fascicles from very broad (1 to 2 in. in diam.) tubercles on the larger branches ; pedicels 15 to 25 in. long, rusty-tomentose ; bracteole linear, or absent. *Sepals* ovate-lanceolate, much acuminate, spreading, 5 in. to 75 in. *Petals* subequal in length,

narrowly linear, unequal in breadth, .15 in. broad at the base, and at the middle, narrower between and from the middle upwards; 1-nerved; finely pubescent; the inner slightly shorter and narrower. *Torus* columnar, truncate. *Ovaries* strigose: ovules 3 to 5, 1-seriate: stigma punctiform. *Ripe carpels* globose, densely rufous-velvety, shortly stalked.

Malacca: Maingay (Kew Distrib.), No. 41.

10. *UNONA STENOPETALA*, Hook. fil. and Thoms. Fl. Ind. 136. A tree 20 to 35 feet high: young branches softly rufous-tomentose; the older dark-coloured, glabrous, striate. *Leaves* thinly coriaceous, oblong-obovate or oblanceolate, more or less acuminate, narrowed below to the slightly cordate and oblique base: both surfaces glabrous, the middle more or less pubescent on the lower; under-surface faintly reticulate when dry; main nerves 7 to 9 pairs, curving upwards, anastomosing doubly at some distance from the edge, thin but slightly prominent: length 4 to 7 in., breadth 1.25 to 3 in.; petiole .1 to .25 in., rufous-tomentose. *Flowers* 1.5 to 2 in. long, almost sessile or shortly pedicelled, in fascicles of 2 to 4 on minutely bracteate extra-axillary tubercles from both branches and stem. *Sepals* united at the base, lanceolate, acuminate, the bases broad, ribbed, spreading, pubescent externally, .4 to .5 in. long. *Petals* sub-equal, narrowly linear, concave, slightly wider at the base, keeled, sparsely pubescent, 1.25 to 3 in. long. *Stamens* numerous, short with broad flat apices hiding the lateral anthers. *Ovaries* 4 to 7, villous, 4- or 5-ovuled. *Ripe carpels* few, sub-globular or bluntly ovate, softly tomentose at first, ultimately sub-glabrous; the pericarp thick, .5 to .65 in. long and .5 in. in diam. *Seeds* 1 to 3, thickly discoid, bi-concave with grooved edge, rugulose. Hook. fil. and Th. Fl. Br. Ind. I, 60: Miquel Fl. Ind. Bat. I, pt. 2, 43: Kurz F. Flora Burma, I, 35.

Singapore: Lobb, Ridley. Penang: King's Collector, Scortechini; common. ? Burmah, (in Tenasserim): Lobb.

This is a rare plant in Burmah, if indeed it occurs there at all. The leaves of some of the Perak specimens have petioles .5 in. long; but usually they are as above described.

## 11. *POLYALTHIA*, Blume.

Trees or shrubs with the habit of *Unona*. *Sepals* 3, valvate or sub-imbricate. *Petals* 6, 2-seriate, ovate or elongated, flat or the inner slightly vaulted. *Torus* convex. *Stamens* cuneate; anther-cells extrorse, remote. *Ovaries* indefinite; style usually oblong; ovules 1-2, basal and erect, or sub-basal and ascending. *Ripe carpels* 1-seeded, berried.—  
DISTRIB. Tropical Asiatic sp. about 45; African sp. 3; Australasian species 2.



Sect. I. MONOON. Ovule solitary, usually basal, erect.  
Flowers from the axils of the leaves or of fallen  
leaves, not from the trunk.

Flowers solitary.

Leaves under 5 in. in length (7 in. in *P.*  
*Sumatrana*), more or less lanceolate.

Leaves not glaucous beneath; petals  
ovate, acute ...

1. *P. dumosa*.

Leaves very glaucous beneath; petals  
linear-oblong, obtuse.

Ripe carpels smooth ...

2. *P. hypoleuca*.

Ripe carpels vertically ridged ...

3. *P. sumatrana*.

Leaves over 5 in. in length, not glaucous.

Flowers axillary.

Petals more or less narrowly lan-  
ceolate.

Leaves ovate-lanceolate, gla-  
brous; ripe carpels oblong,  
blunt at each end ...

4. *P. andamanica*.

Leaves oblong to obovate-ob-  
long, more or less pubescent;  
ripe carpels elliptic, mu-  
cronate ...

5. *P. magnoliaeflora*.

Petals oblong-elliptic, slightly  
obovate, 1·3 to 2·25 in. long ...

6. *P. macrantha*.

Flowers terminal; petals ovate-elliptic,  
1 to 1·25 in. long ...

7. *P. pulchra*.

Flowers solitary or in pairs; ripe carpels little  
more than ·25 in. long.

Flowers ·4 in. in diam.; petals broadly  
oblong-ovate, obtuse ...

8. *P. Kunstleri*.

Petals 1·5 to 2 in. long, lanceolate-ob-  
long; leaves narrowly lanceolate-  
oblong or elliptic-oblong ...

9. *P. Scortechinii*.

Petals ·85 to 1·5 in. long, broadly  
lanceolate or oblanceolate; leaves  
oblong-lanceolate to ovate-elliptic...

10. *P. Jenkinsii*.

Flowers in pairs; petals obovate-oblong, 1 in.,  
long; ripe carpels ovoid; ·65 in. long ...

11. *P. Hookeriana*.

Flowers always in fascicles or cymes, axillary  
or from the branches below the leaves ...

12. *P. simiarum*.

Flowers in fascicles from the young branches

below the leaves, or from the larger branches;  
never axillary.

Leaves 8 to 15 in. long with 12 to 16  
pairs of prominent oblique or spread-  
ing nerves ... 13. *P. lateriflora*.

Leaves 6 to 8 in. long with 10 to 12  
pairs of slender, spreading nerves... 14. *P. sclerophylla*.

Flowers in fascicles from tubercles on the main  
stem, often near its base; never axillary, and  
probably never from the branches.

Inflorescence aërial,

Leaves under 8 in. in length.

Leaves oblong-lanceolate;  
nerves 8 or 9 pairs; torus  
of ripe fruit 1·25 in. in  
diam.: stalks of ripe carpels  
·75 in. long ... 15. *P. macropoda*.

Leaves oblong; nerves 7  
pairs; torus of ripe fruit ·5  
in. in diam.; stalks of ripe  
carpels 1·5 in. long ... 16. *P. clavigera*.

Leaves elliptic to oblong,  
slightly oblique ... 17. *P. glomerata*.

Leaves 9 to 16 in. long; oblong-  
elliptic ... 18. *P. congregata*.

Inflorescence sub-hypogæal ... 19. *P. hypogæa*.

Sec. II. EUPOLYALTHIA. Ovules 2 (3 in *P. Korinti*), superposed.

Flowers solitary.

Leaves under 5 in. long, not cordate at the  
base.

Leaves oblong-lanceolate.

Petals oblong ... 20. *P. obliqua*.

Petals broadly ovate or ovate-  
orbicular, leaves glaucous ... 21. *P. aberrans*.

Leaves upwards of 5 in. long, cordate at  
the base.

Petals narrowly linear ... 22. *P. bullata*.

Petals oblong.

Flowers 1 in. diam. ... 23. *P. subcordata*.

Flowers 1·25 to 1·75 in. in diam. 24. *P. oblonga*.

Flowers in fascicles from the older branches.

Petals linear-oblong, 1 to 1·5 in. long; ripe

carpels .35 in. long, their stalks .6 to .75

in. long ... .. 25. *P. Beccarii*.

Petals linear-oblong, 2 to 3 in. long; ripe

carpels .75 to 1 in. long, sub-sessile ... 26. *P. cinnamomea*.

Petals oblong-lanceolate or oblanceolate, .9

to 1.5 in. long; ripe carpels 1.75 in. long,

their stalks .25 in. long ... 27. *P. pachyphylla*.

Petals linear, obtuse, .5 to .75 in. long ... 28. *P. pycnantha*.

1. *POLYALTHIA DUMOSA*, King n. sp. A shrub; young branches slender, glabrous. *Leaves* thinly coriaceous, lanceolate or oblong-lanceolate, acuminate, the base rounded; both surfaces dull, glabrous, very minutely lepidote; main nerves 8 or 9 pairs, spreading, faint, inter-arching far from the margin; length 2.5 to 3.25 in., breadth .5 to .9 in., petiole less than .1 in. *Flowers* solitary, leaf-opposed, .3 to .35 in. long; pedicels slender, glabrous, .3 to .4 in. long with a small lanceolate bractlet about the middle. *Sepals* thick, spreading, broadly ovate, acute or acuminate, .1 in. long, glabrescent outside, quite glabrous inside. *Petals* leathery, subequal, narrowly oblong, acuminate, not widened at the base, sub-corrugated and glabrous outside, puberulous inside, .3 in. long. *Stamens* numerous, short; the apical process very broad, rhomboid, truncate, projecting much over the apices of the short dorsal anther-cells. *Ovaries* very few, oblong, pubescent; stigma broad, sessile, hairy. *Ripe carpels* one or two, ovoid-globose, glabrous, cherry-red when ripe, .25 to .3 in. long.

Perak; elevat. about 1,200 feet; Wray, Scortechini.

Near *P. suberosa*, H. f. and Th. but with different venation, fewer carpels, and without hypertrophied bark.

2. *POLYALTHIA HYPOLEUCA*, Hook. fil. and Thoms. in Fl. Br. Ind. I, 63. A tree 50 to 80 feet high; young branches slender, rather pale, striate; all parts glabrous except the flowers. *Leaves* coriaceous, oblong-lanceolate or elliptic-lanceolate, shortly acuminate, the base acute, the edges slightly recurved when dry, upper surface shining, the lower dull, pale: main nerves many pairs, invisible on either surface except in some occasional leaves when dry: length 2.5 to 5 in., breadth .75 to 1.75 in., petiole .2 to .3 in. *Flowers* sub-erect, small (only .3 to .4 in. long) pedicelled, solitary or sub-fascicled, mostly from the axils of fallen leaves: pedicel stout, about .15 in. long, tomentose and with about two cucullate bracts near the base. *Sepals* very small, triangular, pubescent, deciduous. *Petals* linear-oblong, obtuse, not dilated at the base, grey-pubescent on both surfaces. *Ripe carpels* few, often solitary, stalked, elliptic-oblong, obtuse, glabrous, .8 in. long: stalks .1 to .25 in. *Seed* ovoid-elliptic, blunt, dark-coloured, transversely striate.

Singapore: Maingay, No. 50, (Kew Distrib.) Perak; King's Collector.

This approaches *Guatteria sumatrana*, Miq. in its leaves: but that species has much larger flowers. But this is still more allied to *Guatteria hypoglauca*, Miq., from which it differs by its much larger fruit. The plant named *P. hypoleuca* by Kurz in his Forest Flora of Burmah is, as he himself informed Sir Joseph Hooker in a letter, really *P. sumatrana*. Neither species, however, appears to me to occur either in the Andamans or Burmah.

3. *POLYALTHIA SUMATRANA*, King (not of Kurz.) A tree 30 to 60 feet high: young branches pale, the older much furrowed: all parts glabrous except the flowers. *Leaves* coriaceous, oblong-lanceolate, acuminate, the base acute; upper surface shining, the lower dull glaucous, both pale (when dry); main nerves 15 to 20 pairs, very slender and little more prominent than the secondary; length 4·5 to 6·5 in., breadth 1·25 to 1·75 in., petiole ·25 in. *Flowers* 1·4 to 1·75 in. long, solitary or in fascicles of 2 or 3 from the younger branches below the leaves, or axillary; their pedicels ·6 to ·9 in. long, minutely bracteolate near the base, glabrous. *Sepals* very small, half-orbicular-ovate. *Petals* narrowly linear-oblong, sub-acute or obtuse, puberulous, pale green to yellowish, the outer slightly longer than the inner, 1·35 to 1·75 in. long and ·15 to ·2 in. broad. *Ovaries* glabrous, sub-cylindric, with a single ovule: stigma hairy. *Carpels* ovoid, tapering to each end, ridged (when dry), pubescent or glabrous, about 1 in. long and ·6 in. in diam.; their stalks ·5 to ·6 in. long. *Guatteria sumatrana*, Miq. Fl. Ind. Bat. Suppl. 380. *Monoon sumatranum*, Miq. Ann. Mus. Lugd. Bat. II, 19.

Perak; at elevations up to 2,500 feet, common. Distrib.: Sumatra, Korthals, Beccari P. S., No. 613. Borneo, Korthals.

This is allied to *P. hypoleuca*, H. f. and Th.; but has larger leaves, much larger flowers, and slightly different carpels.

4. *POLYALTHIA ANDAMANICA*, Kurz Andam. Report (1870) p. 29. A shrub: young branches slender, tomentose. *Leaves* membranous, ovate-lanceolate, acute; the base broad and rounded, slightly unequal; some of the larger nerves underneath and the midrib on both surfaces pubescent near the base, otherwise glabrous and shining; main nerves 6 or 7 pairs, distant, spreading and forming bold arches far from the margin: reticulations minute, distinct: length 4·5 to 6 in., breadth 2 to 2·4 in.; petiole ·2 in., pubescent. *Flowers* axillary or extra-axillary, solitary, 2 in. in diam.; the pedicel ·4 to ·75 in. long, sub-pubescent, minutely bracteolate. *Sepals* minute (·1 in. long), broadly triangular, pubescent. *Petals* thinly coriaceous, sub-equal, oblong, blunt, 1 in. long. *Ripe carpels* 6 to 8, oblong, smooth, glabrous, slightly apiculate, ·5 or ·6 in.

long and .15 to .2 in. in diam., their stalks nearly as long. *P. Jenkinsii*, Benth. and Hook. fil. in Hook. fil. Fl. Br. Ind. I, 64 (in part); Kurz Flora Burm. I, 38.

S. Andaman : Kurz, Man, King's Collector.

Allied to *P. Jenkinsii*, H. f. and T.; but with much smaller flowers, and leaves with broader bases.

5. *POLYALTHIA MAGNOLIEFLORA*, Maing. MSS. Hook. fil. Fl. Br. Ind. I, 64. A tree 30 to 40 feet high; young branches rusty-tomentose. Leaves thinly coriaceous, oblong to obovate-oblong, obtuse or acuminate, the base rounded or minutely cordate; upper surface glabrous, the nerves and midrib minutely tomentose; under surface at first pubescent, ultimately glabrous or glabrescent: main nerves 15 to 20 pairs, rather straight, oblique, prominent beneath, the transverse veins almost straight, distinct; length 8 to 12 in., breadth 2.5 to 3.5 in.; petiole .25 in. stout, tomentose. Flowers large, shortly pedunculate, solitary, axillary, 2.5 to 3 in. long; peduncle .3 in. long, tomentose, with 2 large ovate bracts. Sepals coriaceous, short, broadly ovate, acute, spreading, tomentose. Petals coriaceous, white, linear-oblong or oblong-lanceolate, sub-acute, tomentose. Torus conical. Ovaries hirsute. Carpels (unripe) stalked, oblong-ovoid, blunt at either end, the apex mucronate, pubescent. Seed with smooth shining testa.

Malacca : Maingay. Perak ; King's Collector, No. 10039.

Evidently a rare species. I have seen only Maingay's imperfect specimens from Malacca, and two collected on Ulu Bubong by the late Mr. H. H. Kunstler, Collector for the Bot. Garden, Calcutta. Sir J. D. Hooker states (F. B. Ind. l. c.) on Maingay's authority that the flowers have the colour and odour of those of a *Magnolia*.

6. *POLYALTHIA MACRANTHA*, King n. sp. A tree 20 to 70 feet high; young branches rather slender, glabrous. Leaves large, thinly coriaceous, oblong to elliptic-oblong, acute, slightly narrowed below the middle to the rounded or minutely cordate base; upper surface shining, glabrous except the depressed slightly puberulous midrib; lower surface paler when dry, glabrous, very minutely lepidote; main nerves 20 to 24 pairs, spreading, thin but prominent beneath; length 12 to 18 in., breadth 4.5 to 7.5 in., petiole .4 in., stout. Flowers solitary, axillary or slightly supra-axillary, 2.5 to 4.5 in. in diam.; pedicels 1.5 to 2 in. long (longer in fruit) glabrescent, with a sub-orbicular bracteole about the middle; the buds conical when young. Sepals thick, sub-orbicular, spreading, connate by their edges and forming a cup .75 in. in diam., puberulous on both surfaces, corrugated outside. Petals much larger than the sepals, white, thick, fleshy, flattish, oblong-elliptic, widest above the middle, blunt, puberulous on both surfaces except at the glabrescent

bases, nerved inside; the outer row 1·3 to 2·5 in. long, the inner smaller. *Stamens* numerous, compressed; apical process of connective truncate. *Ovaries* few, oblong, puberulous; stigmas large, capitate-truncate, pubescent. *Ripe carpels* elliptic-ovoid, sometimes oblique, blunt at each end, the apex mucronate, glabrous, 1 to 1·25 in. long, and ·75 in. in diam. *Seed* ovoid, solitary, the testa corrugated.

Perak; King's Collector, Scortechini.

A remarkable species with handsome white flowers, allied in many ways to *P. congregata*; but at once distinguished from it by its axillary, solitary flowers and glabrous ripe carpels.

7. *POLYALTHIA PULCHRA*, King. A small tree, glabrous except the inflorescence. *Leaves* thinly coriaceous, elliptic to oblong-lanceolate or oblong-ob lanceolate, acute or acuminate, the base acute; both surfaces minutely muriculate, the lower paler and dull; length 4·5 to 6 in., breadth 2·5 in. (only 1·75 in. in var. *angustifolia*), petiole ·25 in. *Flowers* large, solitary, terminal, 2 in. or more in diam. when expanded (often 3·5 in. in diam. in var. *angustifolia*): pedicels 1·4 to 1·75 in. long, puberulous, with a lanceolate foliaceous bracteole at the base. *Sepals* ovate, acute or sub-acute, nerved, glabrous, ·6 to ·75 in. long. *Petals* coriaceous, sub-equal, ovate-elliptic, sub-acute, the base slightly cordate (narrowly oblong-lanceolate in var. *angustifolia*) greenish-yellow with a triangular blotch of dark purple at the base. *Stamens* numerous; apical process of connective broad, truncate, sub-orbicular, projecting over the apex of the linear anther-cells, pubescent. *Ovaries* oblong, adpressed-pubescent, 1-ovuled; style short, cylindric, thick, crowned by the convex, terminal, pubescent stigma. *Ripe carpels* numerous, elliptic-ovoid, blunt, slightly contracted at the base, sparsely pubescent but becoming almost glabrous, purple when ripe; pericarp sub-succulent: stalks thick, crimson when ripe, 1·5 in. long. *Seed* solitary, elliptic.

Perak: at Weld's Rest, Scortechini.

Var. *angustifolia*, King. *Leaves* oblong-lanceolate or oblong-ob lanceolate, scarcely muriculate; petals lanceolate or narrowly oblong-lanceolate, often 1·75 in. long; sepals often ·75 in. long.

Perak; on Gunong Bubu; elevat. 5,000 feet, Wray.

8. *POLYALTHIA KUNSTLERI*, King n. sp. A shrub or small tree; young branches puberulous, speedily glabrous. *Leaves* oblong-lanceolate rarely elliptic-lanceolate, shortly and rather bluntly acuminate, the base narrowed and sub-acute or rounded; upper surface glabrous, shining; the lower paler, dull, puberulous on the midrib and nerves; main nerves 6 to 12 pairs, rather prominent beneath, ascending, inter-arching ·1 to ·2 in. from the margin; length 4·5 to 8 in., breadth 1·5 to 2·35 in.; petiole ·2 in., pubescent. *Flowers* ·4 in. in diam., axillary or extra-axillary,

solitary or in pairs; peduncles .25 in. long, each with two rather large unequal, broadly ovate bracts above the base. *Sepals* broadly triangular-ovate, obtuse, nearly as long as the petals and, like them, minutely tomentose. *Petals* sub-equal, broadly oblong-ovate, obtuse. *Ovule* solitary. *Fruit* 2 in. in diam.; individual carpels numerous, ovoid-globular, apiculate, .3 in. long; stalks slender, .5 in. long, adpressed rufous-pubescent like the carpels. *Ellipseia parviflora*, Scortechini MSS.

Perak: King's Collector, Scortechini, Wray.

This much resembles *P. Jenkinsii* and *P. andamanica* in its leaves and fruit: but its flowers are totally different.

9. *POLYALTHIA SCORTECHINII*, n. sp. King. A small tree 15 to 20 feet high; young branches minutely rufous-tomentose, but speedily glabrous. *Leaves* thinly coriaceous, oblong or oblong-elliptic, acute or shortly acuminate, the base rounded or sub-acute; upper surface glabrous, shining, the midrib pubescent; the lower dull, very minutely dotted, the midrib and sometimes nerves puberulous; main nerves 8 to 11 pairs, bold and prominent on the lower surface, oblique, inter-arching close to the edge: length 4 to 8 in., breadth 1.15 to 2.25; petiole .25 in., pubescent. *Flowers* pedicelled, solitary or in pairs, from the axils of leaves or of fallen leaves: pedicels .5 to .75 in. long, rufous-tomentose, with a rather large bract about the middle. *Sepals* small, triangular, pubescent. *Petals* fleshy, sub-equal, greenish-yellow changing into dark dull yellow, oblong-lanceolate or oblong-ob lanceolate, acute or rather blunt, the edges wavy, both surfaces minutely pubescent, 1.5 to 2 in. long. *Ovaries* narrowly elongate-adpressed, pubescent, each crowned by large fleshy glabrous stigma. *Ovule* solitary, basal. *Fruit* shortly stalked; ripe carpels numerous pedicelled, ovoid, crowned by the remains of the stigma, sparsely pubescent, .3 in. long; pedicel slender, pubescent, .75 in. long. *Seed* with pale smooth testa. *P. Jenkinsii*, H. f. and T. (in part). *Ellipseia undulata*, Scortechini MSS.

Malacca: Griffith, No. 413. Perak, King's Collector, Scortechini. Distrib. :—Sumatra, Beccari, Nos. 935, 976.

10. *POLYALTHIA JENKINSII*, Benth. and Hook. fil. Gen. Pl. I, 25. A tree: young shoots sparsely rufous-pubescent. *Leaves* membranous, oblong-lanceolate to elliptic-ovate, acute or shortly acuminate, slightly narrowed to the acute or rounded sub-oblique base; both surfaces glabrous, minutely reticulate, the upper shining and the midrib puberulous; main nerves about 7 pairs, slender, slightly prominent beneath, inter-arching at some distance from the edge: length 4 to 7 in., breadth 1.35 to 3 in., petiole .2 to .3 in. *Flowers* large (1.75 to 3 in. in diam.), pedicelled, solitary, rarely in pairs, axillary: pedicels .6 to .75 in. long, pubescent, and with several small rounded bracts near the base. *Sepals*

very small, sub-orbicular, puberulous. *Petals* sub-coriaceous, spreading, greenish changing to yellow, broadly lanceolate or oblanceolate, sub-acute or obtuse, the base much narrowed, puberulous or glabrous. *Ripe carpels* numerous, stalked, oblong, slightly apiculate, glabrous, .4 in. long: stalk slender, .6 in. long. *Seed* smooth. Hook. fil. Fl. Br. Ind. Ind. I, 64 (*in part*); Kurz For. Fl. Burm. I, 375 (*in part*); *Guatteria Jenkinsii*, Hook. fil. and Thoms. Fl. Ind. 141; Miq. Fl. Ind. Bat. I, pt. 2, p. 46. *Guatteria Parveana* Miq. Fl. Ind. Bat. Vol. I, Pt. 2, p. 48, and Suppl. 378. *Uvaria canangioides*, Reichb. fil. et Zoll. MSS. *Monoon canangioides*. Miq. Ann. Mus. Lugd. Bat. II, 18.

Malacca; Griffith; Maingay, No. 46 (and 45 *in part*) (Kew Distrib.). Perak; King's Collector, No. 3910. Assam and Silhet.

Specimens from Perak have larger flowers than those from Assam; but otherwise they agree fairly well, and both appear to be specifically identical with the Sumatra plant named *Guatteria* or *Monoon canangioides* by Miquel. The Andaman plant which Kurz originally (Andam. Report (1870) p. 29) named *Polyalthia andamanica*, but which Sir Joseph Hooker (dealing with imperfect materials) reduced (with Kurz's assent) to this species, I have restored to specific rank. Recently received specimens show its flowers to be different from those of true *P. Jenkinsii* (the petals being shorter and narrower), while the carpels are larger.

11. *POLYALTHIA HOOKERIANA*, King n. sp. A tree 20 to 70 feet high: young branches softly tawny-pubescent, ultimately glabrous and darkly cinereous. *Leaves* membranous, obovate-elliptic or oblanceolate, shortly acuminate, narrowed from above the middle to the sub-cuneate base; both surfaces reticulate, the upper glabrous except the pubescent midrib and nerves: lower glabrous, the midrib and nerves adpressed-pubescent: main nerves 10 or 11 pairs, oblique, forming imperfect arches close to the edge, prominent beneath; length 5 to 7 in., breadth 2.25 to 3.25 in.; petiole .15 to .2 in., tomentose. *Flowers* in pairs from peduncles with several aborted flowers near their bases, extra-axillary: pedicels .5 to .75 in. long, lengthening in fruit, stout, pubescent, with 1 or 2 small ovate bracteoles at the middle or below it. *Sepals* broadly ovate, concave, free or connate only at the base, pubescent outside, glabrous within, .2 in. long. *Petals* coriaceous, yellowish, subequal, ovate or obovate-oblong, sub-acute, puberulous except at the base inside, only slightly contracted at the base, nearly 1 in. long. *Stamens* numerous, very short, cuneate; the apical process of the connective thick with a truncate orbicular top hiding the linear dorsal anthers. *Ovaries* short, oblong, puberulous, with 1 ovule: stigma sessile, large, obovate with sub-truncate lobed apex. *Ripe carpels* numerous, ovoid, slightly apicu-



late at the top and somewhat narrowed at the base, .65 in. long, stalks 1.2 in. long. *Seed* solitary, ovoid, smooth, with a vertical furrow.

Malacca: Maingay (Kew Distrib.). No. 96. Perak; King's Collector; Wray.

This is a common tree in Perak. In Malacca, however, it appears to be rare; for it is so very imperfectly represented in Maingay's great Malayan collection (of which the best set is at Kew), that Sir Joseph Hooker, while recognising it as a *Polyalthia*, had not sufficient material to enable him to describe it in his *Flora of British India*.

12. *POLYALTHIA SIMIARUM*, Benth. and Hook. fil. Gen. Pl. I, 25; Hook. fil. Fl. Br. Ind. I, 63. A tree 50 to 80 feet high; all parts glabrous except the puberulous leaf buds, under surface of nerves of leaves and inflorescence; young branches pale brown, striate, sparsely lenticellate. *Leaves* sub-coriaceous, ovate-oblong to oblong-lanceolate, acute or shortly acuminate, the base rounded or sub-acute; upper surface shining; lower dull, sometimes puberulous on the midrib and nerves; main nerves 12 to 16 pairs, oblique, prominent beneath; length 5 to 11 in., breadth 2 to 4.5 in., petiole .25 in. *Flowers* podicelled, in few-flowered sessile fascicles from the axils of fallen leaves or from tubercles on the larger branches: pedicels minutely pubescent, with a small bract below the middle, 1 to 1.25 in. long. *Sepals* small, bluntly triangular, recurved, pubescent outside. *Petals* spreading, linear, sub-acute or acute, greenish-yellow to purplish, puberulous outside, glabrous inside, 1 to 1.25 in. long, the inner rather the longer. *Ripe carpels* stalked, ovoid-elliptic, slightly mammillate, contracted towards the base, glabrous and orange-red to bluish-black when ripe, 1.25 to 1.5 in. long: stalk from 1 to 1.75 in. *Seed* ovoid, grooved, transversely striate. Kurz For. Fl. Burm. I, 37; Hook. fil. Fl. Br. Ind. I, 63. *Gualteria simiarum*, Ham., Wall. Cat. 6440; Hook. fil. and Thoms. Fl. Ind. 142. *G. fasciculata*, Wall. MSS. ex Voigt Hort. Sub. Calc. 16. *Polyalthia lateriflora*, Kurz (not of King), Journ. As. Soc. Beng., Pt. 2, (for 1874) 52. *Unona simiarum*, H. Bn., Pierre Fl. Forest. Coch-Chine, t. 23.

Andamans, Bot. Garden Collectors. Perak, King's Collector. Forests at the base of the Eastern Himalaya, the Assam range, Chittagong, Burmah.

Var. *parvifolia*, King: leaves smaller than in typical form (3.5 to 6 in. long and 1.25 to 2.25 in. broad) puberulous beneath.

Perak; at elevation of 3,000 to 4,000 feet. Distrib. Sumatra: on Goenong Trang, Lampong. (Forbes, No. 1536).

13. *POLYALTHIA LATERIFLORA*, King. A tree 50 to 70 feet high: young branches lenticellate and striate; all parts except the inflorescence quite glabrous. *Leaves* coriaceous, oblong to elliptic-oblong

abruptly acute or shortly acuminate, slightly narrowed to the rounded rarely sub-cordate and unequal base: upper surface shining, the lower paler, rather dull: main nerves 12 to 16 pairs, rather prominent, oblique spreading, evanescent at the tips: length 8 to 15 in., breadth 2·5 to 7 in.; petiole 3 in. stout. *Flowers* in fascicles from tubercles on the stem and larger branches, pedicelled, 1·25 to 2 in. long; pedicels slender, thickened upwards, pubescent, with 2 bracteoles about the middle, 1·25 to 1·75 in. long. *Sepals* coriaceous, ovate-orbicular, very short, densely and minutely tomentose outside. *Petals* coriaceous, greenish-yellow, dull crimson at the base, oblong-lanceolate, gradually tapering to the sub-acute apex, the outer rather shorter than the inner, minutely pubescent especially on the outer surface. *Ripe carpels* ovoid-elliptic, blunt, slightly narrowed to the base, glabrous, 1·25 in. long and 7 in. in diam.; the pericarp thin, fleshy: the stalks stout, glabrous, sub-asperulous, 1·25 to 2 in. long. (*Guatteria lateriflora*, Bl. Bijdr. 20: Fl. Jav. p. 100, t. 50 and 52 D.: Miq. Fl. Ind. Bat. I, pt. 2 p. 47. *Momoon lateriflorum*, Miq. Ann. Mus. Lugd. Bat. II, 19.

Perak; at low elevations, Wray, King's Collector. Distrib: Java.

This is closely allied to *P. simiarum*, Benth. and Hook. fil.: but has smaller flowers which are often borne on the smaller branches; smaller leaves; and shorter stalked carpels. Moreover the leaves and young branches of this are invariably glabrous. The leaves of old trees are very markedly smaller than those on young specimens. Specimens in young fruit of a plant which may belong to this species have been recently received from the Andamans from the Collectors of the Bot. Garden, Calcutta: but, until the receipt of fuller material, I hesitate to include these islands in the geographical area of the species.

14. *POLYALTHIA SCLEROPHYLLA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 65. A glabrous tree: young branches pale. *Leaves* coriaceous, oblong, ovate or linear-oblong, acute or obtusely acuminate, the base broadly cuneate, shining on both surfaces and with the reticulations distinct; main nerves about 10 to 12 pairs, spreading, slender: length 6 to 8 in.: breadth 1·5 to 2·6 in., petiole 5 in. *Flowers* pedunculate, in fascicles from small tubercles on the trunk, 2 in. in diam., greenish: tubercles 5 to 1 in. in diam.: peduncles 1 to 1·5 in. long, stout, rusty-pubescent, becoming glabrous; bracts small, orbicular, from about the middle of the peduncle. *Sepals* ovate, obtuse, short. *Petals* linear-oblong, obtuse, the base slightly concave, puberulous on both surfaces, 1·6 in. long, the inner rather smaller. *Torus* broad, flat, the edge raised. *Ovaries* pilose, shorter than the cylindric style. *Ripe carpels* elliptic-oblong, slightly narrowed at either end, 1 to 1·5 in. long, glabrous, the pericarp thin: stalks 1 to 1·5 in. long. *Seed* oblong, the testa shining, pale.

Malacca; Maingay (Kew Destrib), No. 101.

I have seen only Maingay's Malacca specimens of this plant.

15. *POLYALTHIA MACROPODA*, King n. sp. A tree 50 to 60 feet high; young branches rather pale, pubescent but speedily glabrous. *Leaves* membranous, oblong-lanceolate, shortly acuminate, the base acute; the edge slightly revolute; upper surface shining, glabrous except the puberulous sulcate midrib; the lower paler when dry, minutely lepidote, sparsely strigose on the midrib and 8 or 9 pairs of curving rather prominent nerves; length 3·5 to 5·5 in., breadth 1·4 to 2·1 in., petiole ·25 in. *Flowers* nearly 1 in. long, in fascicles on short broad rugose woody tubercles from the stem close to its base: pedicels about 1 in. long, woody in fruit and 2 in. or more in length, glabrous; bracteoles (if any) deciduous. *Sepals* broadly ovate, acute, spreading, corrugated and glabrescent outside, glabrous inside, connate at the base to form a cup ·65 in. in diam. *Petals* elliptic, blunt, slightly constricted about the middle, sub-equal, puberulous, coriaceous. *Stamens* numerous, compressed especially the outer rows; apical process of connective transversely elongated, truncate. *Ovaries* numerous, oblong-ovoid. *Ripe fruit* with large woody sub-globular torus 1·25 in. in diam.; *ripe carpels* numerous, oblong-ovoid, tapering to the apex, the base gradually narrowed into a stalk, 2·5 to 3·5 in. long (including the stalk); pericarp rather fleshy, glabrous. *Seed* solitary, elongated-ovoid, grooved vertically.

Perak: King's Collector, Singapore, Ridley.

A species remarkable for its large ripe carpels borne on the stem near the ground. It is possible that Mr. Ridley's plant, collected in Singapore, may really belong to a distinct species, the only specimen of it which I have seen being very imperfect. This comes very near *P. clavigera* King.

16. *POLYALTHIA CLAVIGERA*, King n. sp. A tree 30 to 40 feet high; young branches slender, at first puberulous but speedily glabrous and pale. *Leaves* thinly coriaceous, oblong, tapering to each end, acuminate; both surfaces reticulate; the upper shining, glabrous except the puberulous sulcate midrib; lower surface slightly puberulous at first but ultimately quite glabrous: main nerves 7 pairs, ascending, curved, not inter-arching, slightly prominent beneath, obsolete above; length 5·5 to 8·5 in., breadth 1·75 to 2·5 in.; petiole ·4 in. slightly winged above. *Flowers* unknown. Peduncle of ripe fruit stout, woody, 2 in. or more in length; the torus depressed-globular, woody, about ·5 in. in diam.: *ripe carpels* ovoid-elliptic, tapering to each end, the base gradually passing into the stout puberulous slightly scabrid stalk, greenish-yellow when dry, glabrous: the pericarp succulent; length 2·25 in., breadth nearly 1 in.; stalk 1·5 in. puberulous; seed solitary, ovoid.

Penang: Pinara Bukit, elevat. 2000 feet. Curtis (No. 2444).  
Perak: Waterfall Hill, Wray. Distrib. E. Sumatra, Forbes (No. 1638).

This species is known only by a few fruiting specimens collected by Messrs. Curtis and Wray Junior. It is nearly allied to *P. macropoda*, King; but its leaves have different venation and texture, the torus of the ripe fruit is smaller, while the carpels themselves are larger and have longer stalks.

17. *POLYALTHIA GLOMERATA*, King n. sp. A tree 40 to 50 feet high: young branches glabrous, pale, rather slender. *Leaves* membranous, elliptic to oblong, slightly oblique, acute or shortly acuminate, the base slightly cuneate or rounded; both surfaces reticulate, glabrous; the midrib alone puberulous on the upper, adpressed-puberulous on the lower; main nerves 7 to 8 pairs, curved, ascending, not inter-arching, thin but slightly prominent beneath; length 4 to 6 in., breadth 1·8 to 2·6 in., petiole ·25 to ·35 in. *Flowers* about 1 in. long, in clusters of 20 to 30 from nodulated puberulous tubercles on the stem; pedicels long (1·5 to 2·5 in.), slender, puberulous, with an ovate-lanceolate bracteole about the middle. *Sepals* thick, lanceolate-acuminate with broad connate bases, sub-erect, puberulous. *Petals* coriaceous, sub-erect, linear-oblong, slightly concave and glabrous at the base inside, otherwise minutely tomentose, the inner slightly smaller than the outer. *Stamens* numerous; the connective with an orbicular sub-convex apical expansion concealing the linear dorsal anther-cells. *Ovaries* much less numerous than the stamens, oblong, hirsute, apparently 1-ovuled; the stigma small, oblong, slightly pubescent.

Perak; King's Collector, Wray. Distrib. Sumatra; Forbes, No. 2804.

In all the flowers I have examined the pistils are very small (as if undeveloped) and I have not been able to find more than one ovule. In the Sumatran specimens the flowers are much longer than in those from Perak.

18. *POLYALTHIA CONGREGATA*, King n. sp. A tree 40 to 60 feet high; young branches at first rusty-puberulous but speedily glabrous and dark-coloured. *Leaves* thinly coriaceous, oblong-elliptic, acute, slightly narrowed to the rounded or minutely cordate base; upper surface glabrous except the depressed puberulous midrib; the lower pale when dry, glabrous, minutely lepidote; main nerves 13 to 19 pairs, oblique, curving, thin but prominent beneath; length 9 to 16 in., breadth 3·75 to 7 in.; petiole ·3 or ·4 in. stout. *Flowers* large, in short, much divided, rough, tubercular, woody cymes from the stem near its base; the pedicels 1·25 to 1·75 in. long, glabrescent; bracteole single, sub-orbicular, clasping, infra-median. *Sepals* thick, broadly ovate-triangular,

spreading, slightly cuneate at the base, concave, corrugated and puberulous outside, glabrous inside, often reflexed, .5 in. long. *Petals* thick, white, ovate-elliptic, sub-acute, hoary-puberulous except at the base inside on both surfaces; the outer row 1.5 to 3 in. long and .65 to 1 in. broad, the inner row narrower. *Stamens* numerous, compressed; the apical process of the connective truncate, oblique, granular; anther-cells linear, dorsal. *Ovaries* 20 to 30, oblong, strigose, with a single basilar ovule; stigma oblong, pubescent. *Ripe carpels* elliptic, beaked, 1 in. or more long, hoary-pubescent, narrowed at the base into the short, thick stalk. *Seed* solitary, pale brown, shining, elliptic.

Perak; Scortechini, King's Collector.

This resembles *P. macrantha*, King; but is distinguished from it by its cymose, cauline inflorescence, smaller flowers and puberulous fruit. H. O. Forbes collected in the Lampongs in Eastern Sumatra a plant (No. 1642 of his Herb.) which greatly resembles this.

19. *POLYALTHIA HYPOGAEA*, King, n. sp. A tree 25 to 30 feet high; young branches rather stout, densely but minutely rufous-tomentose, ultimately rather pale, striate. *Leaves* large, thinly coriaceous, oblong or elliptic-oblong, sometimes slightly obovate, gradually narrowed to the rounded base; both surfaces glabrous when adult, the lower puberulous when young, the veins transverse and, (like the reticulations), distinct; main nerves 18 to 22 pairs, oblique, inter-arching within the edge, thin, prominent on the lower and depressed on the upper surface when dry; length 10 to 20 in., breadth 3 to 7 in.; petiole .4 in., stout, tomentose. *Flowering branches* from the stem near its base, 1 to 8 feet long, flexuose, rufous-pubescent like the lanceolate bracteoles. *Flowers* .75 to 1 in. long, cream-coloured; pedicels .75 to 1.5 in. long, usually with one lanceolate, tomentose bracteole near the middle and a second, sub-orbicular and acuminate, close to the flower. *Sepals* broadly triangular-ovate, acute, spreading, tomentose outside, glabrous inside, .25 in. long. *Petals* coriaceous, the inner row rather smaller than the outer, narrowly oblong, sub-acute, pubescent outside except the glabrescent base and edges, inside almost glabrous. *Stamens* numerous, short, compressed; apical process of connective broad, slightly convex, slightly oblique, sub-granular, deeply ridged in front, the anther-cells linear dorsal. *Ovaries* few, oblong, villous, 1-ovuled; stigma large, ovoid, granular, sessile. *Immature carpels* narrowly ovoid, sub-compressed, the apex beaked, the base slightly contracted, minutely tomentose. *Seed* solitary, elongated, ovoid, smooth.

Perak; near Laroot, King's Collector. Gunong Batu Puteh; elev. 3,400 feet, Wray.

A species remarkable for its hypogaeal inflorescence. The flower-

ing branches, which vary from 1 to 8 feet in length, originate from the stem near its base, pass into the soil underneath the surface of which they run for some distance, and bear on their emerging tips the flowers and fruit

20. *POLYALTHIA OBLIQUA*, Hook. fil. and Thoms. Fl. Ind. 138. A tree: young branches minutely pubescent, lenticellate. *Leaves* subsessile, oblong-lanceolate, acute or shortly acuminate, the base cuneate, minutely and obliquely cordate; shining and glabrous on both surfaces, the lower pale; main nerves 7 or 8 pairs, slender, curving and forming bold arches .15 in. from the margin; length 4 to 6.5 in., breadth 1.5 to 2.2 in.; petiole 1 in., very stout. *Flowers* .4 to 5.4 in. in diam., solitary, pedicellate, extra-axillary; each pedicel rising from a short conical woody tubercle, curving, .25 in. long. *Sepals* coriaceous, broadly triangular, blunt, less than half as long as the petals, pubescent. *Petals* coriaceous, sub-equal, oblong, obtuse, sericeous outside. *Ripe carpels* pisiform, with stalks .5 in. long, dark brown. Hook. fil. Fl. Br. Ind. I, 67; Miq. Fl. Ind. Bat. I, Pt. 2, p. 44.

Malacca; Griffith, Maingay, No. 44 (Kew distrib.). Chittagong Hill Tracts; Lister. Distrib. Sumatra.

Lister's plant from the Chittagong Hill Tracts agrees well with Griffith's specimens from Malacca.

21. *POLYALTHIA ABERRANS*, Maing. ex Hook. fil. Fl. Br. Ind. I, 67. A large climber, glabrous except the flowers and fruit: young branches slender, black. *Leaves* membranous, oblong-lanceolate, acuminate, the base slightly cuneate; both surfaces reticulate, glabrous, the lower glaucous; main nerves 14 to 18 pairs, very faint, the secondary nerves quite as well marked: length 3.5 to 5 in., breadth 1.4 to 1.8 in., petiole .2 to .25 in. *Flowers* .5 to .75 in. in diam., solitary, axillary; pedicels slender, 1.25 in. long (longer in fruit), with one minute bracteole below the middle and another at the base. *Sepals* ovate-orbicular, sub-acute, quite connate into a 3-angled glabrous cup .25 in. in diam. *Petals* leathery, ovate-orbicular, sub-acute, spreading, concave; the outer row .35 in. long and .3 in. broad, yellowish-pubescent on both surfaces except a glabrous patch near the base on the inner: inner petals half the size of the outer but more concave, hoary-puberulous outside, glabrescent inside. *Stamens* numerous; apical process of connective broad, discoid, depressed in the centre, quite concealing the long linear lateral anther-cells. *Ovaries* narrowly oblong, glabrous, 1 or 2-ovuled: style as long as the ovary, curved: stigma small. *Ripe carpels* ovoid, slightly apiculate, puberulous or glabrescent, .35 in. long and .3 in. in diam.; stalks .7 to .8 in., slender, glabrous. *Seeds* solitary, rarely 2, ovoid, shining, smooth. *Melodorum glaucum*, Scortechini MSS.

Malacca : Maingay. Perak ; Scortechini, Wray.

In some carpels there are two seeds, such carpels being about twice as long as those with a single seed. Although referred by the late lamented Father Scortechini to the genus *Melodorum*, this is an undoubted *Polyalthia* in its stamens, in its 1- rarely 2-ovuled ovaries, and in its carpels with usually solitary, ovoid seeds. In externals, save and except the much smaller size of the flowers, this much resembles the plant figured by Pierre under the name of *Unona Mesnyi* (Flore Forest. Coch-Chine, t. 17) to which indeed Pierre reduces *P. aberrans*.

22. *POLYALTHIA BULLATA*, King n. sp. A shrub 6 to 8 feet high : young branches densely covered with long soft spreading golden hairs. *Leaves* thinly coriaceous, bullate (at least when dry), narrowly oblong, acuminate, narrowed but slightly to the deeply cordate auricled base : both surfaces boldly reticulate, the upper shining, glabrous except the sulcate puberulous midrib ; the lower glabrescent except the midrib and nerves which have sparse hairs like those on the young branches : main nerves 25 to 40 pairs, spreading towards the base, sub-ascending towards the apex, forming a double series of arches within the margin, bold and prominent on the lower, depressed on the upper, surface : secondary nerves and reticulations prominent ; length 12 to 14 in., breadth 2.75 to 3.35 in. ; petiole .25 in., pubescent like the young branches. *Flowers* solitary, terminal or axillary, 1 in. long ; pedicels slender, 1 in. long, pubescent, bracteole small, mesial. *Sepals* small, lanceolate, spreading, free, sparsely pubescent outside, glabrescent inside, about .25 in. long. *Petals* narrowly linear, slightly wider at the base, subequal, sub-concave, sparsely pubescent. *Stamens* numerous, the apical process of the connective sub-convex, orbicular, slightly granular. *Ovaries* much fewer than the stamens, oblong, pubescent ; the stigma sub-capitate-truncate, puberulous. *Ripe carpels* globular-ovoid, blunt at each end, puberulous, .4 in. long ; stalks slender, .2 in. long. *Seeds* 2, plano-convex, the testa rugoso, pale : the albumen horny.

Singapore : Ridley. Perak ; King's Collector.

Evidently a rare shrub ; readily recognisable by its elongate very bullate leaves.

23. *POLYALTHIA SUB-CORDATA*, Blume Fl. Javae, 71 t. 33 and 36 B. A shrub or small tree : young branches sparsely hispid-pubescent, afterwards glabrous and furrowed, not pale. *Leaves* membranous, sub-sessile, oblanceolate-oblong or elliptic-oblong, shortly and obtusely caudate-acuminate ; the base slightly narrowed, sub-cordate, auriculate at one side ; both surfaces glabrous except the sometimes puberulous midrib : main nerves 9 to 12 pairs, slender, the reticulations lax and faint : length 4.5 to 9 in., breadth 1.6 to 3 in. ; petiole .05 in., pubescent. *Flowers*

about 1 in. in diam., solitary, axillary or extra-axillary; peduncles slender, .5 to .75 in. long, puberulous and with 1 or 2 lanceolate bracteoles. *Sepals* ovate, sub-acute; united into a cup. *Petals* coriaceous, yellowish, oblong, sub-acute, the inner rather smaller, slightly pubescent outside. *Carpels* numerous, broadly ovoid, not apiculate, furrowed, glabrous, .4 in. long; stalks slender, .25 in. long; pericarp thin. Miq. Fl. Ind. Bat. I, Pt. 2, p. 44; Ann. Mus. Ludg. Bat. II, 14. *Unona subcordata*, Bl. Bijdr. 15.

Perak; elev. about 800 feet, King's Collector, No. 2373. Distrib. Java.

24. *POLYALTHIA OBLONGA*, King, n. sp. A shrub or small tree 10 to 15 feet high: young branches at first rufous-tomentose, afterwards glabrous, pale and furrowed. *Leaves* thinly coriaceous, sub-sessile, oblong or oblong-oblancoate, abruptly and shortly acuminate, narrowed to the minutely cordate, unequal base; upper surface glabrous, except the pubescent midrib; lower puberulous, the midrib prominent as are the 14 to 20 pairs of little curving, sub-ascending, main nerves; reticulations open and distinct; length 9 to 14 in., breadth 3.5 to 5 in.; petiole .15 in., tomentose. *Flowers* 1.25 to 1.75 in. in diam., solitary, axillary or extra-axillary, from small tubercles: pedicels 1.25 to 2.5 in. long, puberulous and with 2 lanceolate bracteoles near the base. *Sepals* semi-orbicular, acute, very short, united into a cup, pubescent outside. *Petals* coriaceous, yellow, subequal, oblong, tapering to the sub-acute apex, minutely adpressed-pubescent on both surfaces but especially on the outer, length .75 to 1.15 in. *Ripe carpels* 10 to 20, ovoid to orbicular, apiculate, .3 to .35 in. long, pubescent or sub-glabrous; stalks slender, .6 to .75 in. long. *Seeds* usually solitary and ovoid, or sometimes two and plano-convex.

Perak: very common at elevations of from 1,000 to 2,500 feet.

This plant closely resembles *Gutteria* (= *Polyalthia*) *elliptica* Blume: but its leaves have more numerous nerves and its carpels are stalked, those of *P. elliptica* (according both to Blume's description and figure) being sessile and of larger size.

25. *POLYALTHIA BECCARII*, King n. sp. A tree 15 to 40 feet high: young branches slender, rufous-tomentose; the older coarsely striate and lenticellate. *Leaves* thickly membranous, narrowly oblong or oblong-lanceolate, acuminate, slightly narrowed to the rounded base; both surfaces shining and reticulate, the midrib pubescent on the upper tomentose on the lower; main nerves 6 or 7 pairs, slender, spreading, forming bold arches far from the edge, the secondary nerves distinct; length 3 to 4.5 in., breadth .75 to 1.35 in.; petiole .1 in., tomentose. *Flowers* 1 in. long, in fascicles from bracteolate tubercles on the older



branches, their pedicels slender, pubescent, minutely bracteolate near the base, about 1 in. long. *Sepals* ovate-obtuse, .15 in. long, pubescent outside. *Petals* coriaceous, dark-yellow, sub-equal, linear-oblong, sub-acute, 1 in. to 1.5 in. long and from .1 to .2 in. broad, minutely pubescent especially outside. *Ovaries* pubescent, 2-ovuled. *Ripe carpels* numerous, broadly ovoid, apiculate, glabrous, sub-granular when ripe, .35 in. long; their stalks granular, puberulous, .6 to .75 in. long.

Perak: at low elevations. Scortechini, King's Collector, Wray. Distrib. Sumatra; Beccari P. S., No. 401. Borneo; Motley No. 743.

The leaves of this species, although smaller, have much the same venation as those of *P. Teysmannii*, King. The carpels of this are, however, very much smaller than those of *P. Teysmannii*.

26. *POLYALTHIA CINNAMOMEA*, Hook. fil. and Thoms. Fl. Ind. 138; Hook fil. Fl. Br. Ind. I, 65. A tree 50 to 70 feet high; young branches rusty-tomentose. *Leaves* thinly coriaceous, narrowly oblong to oblanceolate, tapering to each end, acute or shortly acuminate, the base rounded; upper surface glabrous, shining; the lower sparsely lucid-pubescent, (glabrescent when old), the midrib tomentose; main nerves about 12 or 14 pairs, slender, curved, ascending, inter-arching freely; length 4.5 to 7.5 in., breadth 1.25 to 2.25 in.; petiole 2 in., tomentose. *Flowers* sub-sessile, solitary, or in pairs from short woody tubercles from the young branches below the leaves, dull red, 2 to 2.25 in. long; peduncles very short, rusty-tomentose, bracteolate at the base. *Sepals* spreading, sub-orbicular, .25 in. long, tomentose. *Petals* sub-equal, thick, linear-oblong, sub-acute, slightly narrowed at the base, adpressed-pubescent externally, glabrous within, 2 to 3 in. long. *Anthers* numerous, short, compressed; connective with broad, flat, apical, truncate process. *Pistils* oblong, pubescent; stigma large, sub-truncate. *Torus* convex, tomentose. *Fruit* globose, 2.5 in. in diam.; the individual carpels pyriform with very short stalks, .75 to 1 in. long and .5 to .75 in. in diam., densely rusty-tomentose; pericarp thick. *Seeds* 2, plano-convex, with scaly testa, Miq. Fl. Ind. Bat. I, Pt. 2, p. 44. *Guatteria cinnamomea*, Wall. Cat. 644k. *G. multinervis*, Wall. Cat. 6445. *Unona cauliflora*, H. f. and Th. Fl. Ind., 137; Fl. Br. Ind. 2, 60. Miq. Fl. Ind. Bat. I, Pt. 2, 43.

Singapore; Wallich, Ridley. Penang; Wallich, Curtis No. 2470. \*Malacca, Maingay (Kew Distrib.) No. 37.

Apparently not a common species. Maingay's specimens from Malacca have rather larger and smoother leaves than those from Singapore and Penang.

27. *POLYALTHIA PACHYPHYLLA*, King, n. sp. A tree 50 to 100 feet high; young branches softly pubescent, afterwards glabrous and furrowed. *Leaves* rigidly coriaceous, elliptic-oblong, sub-acute; the edge

slightly recurved, the base broad and rounded, or narrowed and sub-acute; both surfaces glabrous; the lower slightly paler, the midrib tomentose at the base beneath; main nerves 11 or 12 pairs, spreading, prominent, evanescent at the tips; length 4·5 to 7·5 in., breadth 1·75 to 3·5 in., petiole ·35 to ·5 in., tomentose when young. *Flowers* about 1·5 in. long, in few-flowered fascicles from small tubercles on the older branches; their pedicels 2 in. long, bracteolate about the middle, softly tawny-tomentose. *Sepals* broadly half-orbicular, very short, reflexed, tomentose. *Petals* coriaceous, nerved, pale green, oblong-lanceolate or oblanceolate, sub-acute or obtuse, pubescent on the outer, tomentose on the inner, surface; the outer slightly shorter and narrower than the inner, from ·9 to 1·5 in. long and ·3 to ·5 in. broad. *Stamens* numerous, compressed, the apical process of connective truncate; anthers linear, dorsal. *Ovaries* numerous, glabrous, vertically striate; stigma sessile, truncate, puberulous. *Ripe carpels* numerous, crowded when young, densely covered with minute pale tomentum; when ripe narrowly obovoid, blunt, narrowed to a short stalk, sub-tomentose, 1·75 in. long and about 1 in. in diam.; pericarp thick, fleshy; seeds two, plano-convex.

In its leaves this resembles *Guatteria pondok*, Miq. (Fl. Ind. Bat. Suppl. 380), but that species has carpels with stalks from 2 to 3 in. long.

Perak; at elevation under 1,000 feet, King's Collector, Nos. 6655 and 7516.

28. *POLYALTHIA PYCNANTHA*, King. A tree? Young branches rather stout, covered with soft yellowish pubescence. *Leaves* coriaceous, elliptic-oblong, or oblong-lanceolate, obtusely acuminate, the base obtuse or rounded: upper surface glabrous; lower paler and puberulous on the midrib; main nerves arching, prominent; length 6 to 9 in., breadth 2·5 to 3·5 in.; petiole ·2 in., pubescent. *Flowers* ·5 to ·75 in. in diam., in fascicles from tubercles on the larger branches, 1 to ·5 in. in diam.; flower-peduncles ·25 in. long, pubescent, ebracteate. *Sepals* ovate, acute, ·2 in. long. *Petals* linear, obtuse, flat, sub-equal, the bases of the inner three concave, ·5 to ·75 in. long, pale sericeous outside, glabrescent inside. *Torus* columnar-flat-topped, glabrous: ovules 2, superposed. *Unona pycnantha*, Hook fil. in Fl. Br. Ind. I, 60.

Malacca; Maingay.

## 12. *ANAXAGOREA*, St. Hilaire.

Trees or shrubs. *Leaves* with pellucid dots. *Flowers* small, greenish, leaf-opposed. *Sepals* 3, valvate, connate at the base. *Petals* 6 or 3, sub-equal, 2-seriate, valvate, the inner row sometimes absent. *Torus* convex.

*Stamens* indefinite; anther-cells extrorse or sublateral; connective with a terminal process. *Ovaries* few, style variable; ovules 2, sub-basal, collateral, ascending. *Ripe carpels* follicular; stalk clavate. *Seeds* 1-2, exarillate, testa shining.—Distrib. Tropical Asia and America; species about 8.

Petals 6 ..... 1 *A. luzonensis*

„ 3 ..... 2 *A. Scortechinii*.

1. *ANAXAGOREA LUZONENSIS*, A. Gray Bot. U. S. Expl. Exped. 27. A shrub; all parts glabrous. *Leaves* membranous, oblong or elliptic-oblong, shortly acuminate, the base cuneate, the under surface pale; main nerves 7 or 8 pairs, spreading, slightly prominent beneath, the reticulations wide, rather distinct; length 5 to 7 in., breadth 1·75 to 2·5 in., petiole ·25 to 35 in. *Flowers* about ·5 in. long, solitary; pedicels ·25 in. long (twice as long in fruit), with 1 or 2 amplexicaul bracteoles. *Sepals* small, ovate-rotund, obtuse. *Petals* subequal, elliptic, obtuse, thin, nerved, white. *Ovaries* few. *Ripe carpels* 1 to 3, cuneate-clavate, somewhat compressed, narrowed into a long stalk, 1 to 2-seeded. *Seeds* plano-convex, obovate, black, shining. Hook. fil. Fl. Br. Ind. I, 68. Kurz F. Flora Burm. I, 39. *A. zeylanica*, H. f. and Th. Fl. Ind. 144: Thwaites Enum. 10; Miq. Fl. Ind. Bat. I, Pt. 2, 49; Beddome Ic. Pl. Ind. Or. t. 46. *Rhopalocarpus fruticosus*, Teysm. and Binn. in Miq. Ann. Mus. Lugd. Bat. II, 22 t. 2 fig. B. *Anaxagorea fruticosa*, Scheff. in Nat. Tijdsch. Ned. Ind. XXXI, 9.

Burmah; The Andaman Islands; Malacca; Ceylon. Distrib. Philippines, Cambodia, Sumatra.

2. *ANAXAGOREA SCORTECHINII*, King, n. sp. A bush or small tree: all parts, except the flower, glabrous; the young branches sub-rugulose, 2-ridged. *Leaves* thinly coriaceous, elliptic-oblong or elliptic-obovate, shortly and abruptly acuminate, slightly narrowed to the rounded or sub-acute base; main nerves 7 to 9 pairs, rather prominent beneath, the reticulations open and distinct: length 6 to 8 in., breadth 2·5 to 3·5 in.; petiole ·3 to ·4 in. *Flowers* ·75 in. long, solitary; pedicels ·3 in. (much longer in fruit) with 1 or 2 amplexicaul bracteoles. *Sepals* membranous, their edges thin, broadly ovate, acute, pubescent outside. *Petals* in a single row, much larger than the sepals, oblong-lanceolate, sub-acute, scurfy-pubescent outside, glabrous within, very fleshy, slightly concave at the base. *Stamens* numerous, those next the pistils barren, elongate and bent over the pistils. *Ovaries* numerous, obovoid, pubescent; styles curved. *Carpels* as in *A. luzonensis*, but two or three times as numerous. *Seeds* obovoid, concavo-convex, compressed, black, shining.

Perak: at low elevations; Scortechini, King's Collector, Wray.

I have altered the diagnosis of this genus as regards the petals to

admit this species in which the inner whorl of petals is absent. In other respects the species agrees perfectly with the original diagnosis. Teysmann and Binnindyk's mono-specific genus *Rhopalocarpus* (Miq. Ann. Mus. Lugd. Bat. II, 22, t. 2 fig. B.) is an unmistakable *Anasagorea* in which the inner petals are narrow and incurved. It is probably near *A. luzonensis*. A. Gray, and *A. javanica*, Bl. (See Benth. and Hook. fil. Gen. Plant. I, 957).

### 13. *DISEPALUM*, Hook. fil.

Trees or shrubs. *Sepals* 2, large, concave, valvate. *Petals* 4, narrowly linear-spathulate, incurved, inserted remotely from each other on the margin of the very broad, sub-concave torus. *Stamens* numerous; the apical process of the connective broadly orbicular, sub-convex. *Pistils* 10 to 15 or numerous, ovoid; style short, terete; stigma small, terminal; ovule solitary. *Leaves* minutely pellucid-punctate. *Flowers* in long terminal peduncles, solitary or in pairs. Distrib. Three species, all Malayan.

1. *DISEPALUM LONGIPES*, King, n. sp. A glabrous tree 30 to 40 feet high; young branches slender, pale brown. *Leaves* minutely pellucid-punctate, membranous, oblong, sometimes slightly oblanceolate, rarely oblong-elliptic, abruptly and shortly acuminate, the base cuneate; main nerves 7 to 10 pairs, spreading, (sub-horizontal) very faint; length 4 to 7 in., breadth 1.5 to 2.25 in., petiole .25 in. *Flowers* on long pedicels, dark red, solitary or in pairs, terminal, .5 in. in diam.; pedicels slender, ebracteolate, 1.25 to 2 in. long. *Sepals* reflexed, concave, broadly ovate, blunt. *Petals* remote from each other, linear-spathulate, sub-incurved, .2 in. long. *Stamens* numerous; apical process of the connective orbicular, sub-convex. *Ovaries* numerous, stalked, slightly obovoid, glabrescent or sparsely pubescent, 1-ovuled; style short, straight; stigma small, terminal. *Immature carpels* ovoid, sub-glabrous, slightly corrugated; pericarp fleshy, fragrant. *Seed* solitary, ovoid.

Johore; on Gunong Pauti at 1,500 feet; King's Collector, No. 231. Distrib. Borneo, Beccari (P. B. 1645).

The genus *Disepalum* was founded by Sir Joseph Hooker on a Bornean shrub collected by Lobb, and the only species known to its founder was that described and figured under the name of *D. anomalum* in the Linnæan Transactions (Vol. XXIII, 156, t. 20 A.) The characters which separate the genus from any other in the family are the dimerous symmetry of the sepals and petals, and the small size of the latter, which originate at some distance from each other from the edge of the broad sub-concave torus. The species here described differs from *D. anomalum* in its arboreous habit, larger leaves, and much more numerous

ovaries, which are moreover nearly glabrous and have long stalks. Quite ripe fruit is as yet unknown.

#### 14. GONIOTHALAMUS, Blume.

Small trees or shrubs. *Leaves* with small nerves, forming intra-marginal loops. *Flowers* solitary or fascicled, axillary or extra-axillary; peduncles with basal, scaly, distichous bracts. *Sepals* 3, valvate. *Petals* 6, valvate in 2 series; outer thick, flat or nearly so; inner smaller, shortly clawed, cohering in a vaulted cap over the stamens and ovary. *Stamens* many, linear-oblong; anther-cells remote, dorsal; connective produced into an oblong or truncate process. *Ovaries* many; style simple or 2-fid; ovules solitary or 2, superposed, sub-basal (4 in *G. uvarioides*.) *Ripe carpels* 1-seeded.—Distrib. About 47 species, natives of Eastern tropical Asia and its islands.

The plants referred to this genus are, by Baillon, treated as part of *Melodorum*.

Ovules 1 or 2.

Style cylindric, slender; stigma subulate,  
entire ... .. 1. *G. subevenius*.

Style very short; stigma funnel-shaped, slit  
on one side, its edges toothed ... 2. *G. tenuifolius*.

Style cylindric; stigma truncate, entire.

Flowers in fascicles from the stem only;  
ripe carpels 1·25 in. long ... 3. *G. Prainianus*.

Flowers solitary from the axils of the  
leaves or fallen leaves; ripe carpels 4  
in. long ... .. 4. *G. Kunstleri*.

Style subulate or cylindric; stigma deeply  
2-cleft, petals 3 to 5 in. long ... 5. *G. giganteus*.

Style cylindric; stigma unequally 2-toothed 6. *G. malayanus*.

Style cylindric; stigma minutely and equally  
2-toothed.

Flowers axillary or from the axils of  
fallen leaves; outer petals more than  
1 in. long.

Anthers with slightly convex, orbi-  
cular apical appendages ... 7. *G. fulvus*.

Anthers with very pointed, conical  
apical appendages.

Nerves of leaves 28 to 34 pairs 8. *G. Curtisi*.

Nerves of leaves fewer than  
20 pairs.

- Leaves shining, reticulate,  
glabrous; ripe carpels  
oblong, .5 to .6 in. long 9. *G. Griffithii*.
- Leaves glabrous, opaque,  
dull, not reticulate; ripe  
carpels globular-obovoid;  
.4 in. long. 10. *G. macrophyllus*.
- Flowers in fascicles from tubercles near  
the base of the stem ... 11. *G. Ridleyi*.
- Style cylindric; stigma 3-toothed; apices  
of anthers acuminate.
- Leaves thickly coriaceous; nerves in-  
conspicuous ... 12. *G. Tapis*.
- Leaves strongly and prominently nerved.
- Sepals large, orbicular-ovate, ob-  
tuse, .65 to 1 in. long 13. *G. Scortechinii*.
- Sepals small, ovate acuminate, .2  
in. long ... 14. *G. Wrayi*.
- Ovules and seeds 4 ... 15. *G. uvarioides*.
1. GONIOTHALAMUS SUBEVENIUS, King, n. sp. A shrub or small  
tree; young branches slender, puberulous; otherwise glabrous except  
the flower. *Leaves* membranous, narrowly oblong, tapering at each  
end; upper surface shining, pale-greenish when dry; the lower paler,  
dull; main nerves 10 to 12 pairs, sub-horizontal, invisible or very faint  
on either side; length 3.5 to 6.5 in., breadth 1.25 to 1.75 in., petiole  
.2 in. *Flowers* solitary, axillary, .75 to .9 in. long; pedicels .4 to .6  
in. long, ebracteate. *Sepals* broadly ovate, bluntly acuminate, 3-nerved,  
minutely pubescent on both surfaces, .3 in. long. *Petals* thinly coria-  
ceous, puberulous except towards the base inside, lanceolate, sub-acute;  
the inner petals half as large as the outer, slightly clawed. *Stamens*  
with broad orbicular sub-convex apical process. *Ovaries* narrowly oblong,  
style cylindric, curved; stigma subulate, entire. *Ripe carpels* ovoid to  
oblong, obtuse, tapering very little at the base, glabrous, .5 to .75 in.;  
stalks .35 to .45 in.

Perak; at low elevations, King's Collector.

2. GONIOTHALAMUS TENUIFOLIUS, King, n. sp. A shrub 6 to 8 feet  
high; glabrous except the petals; young branches slender, dark-coloured,  
striate. *Leaves* thinly membranous, lanceolate, or oblong-lanceolate,  
shortly acuminate, the base acute; main nerves 8 to 11 pairs, spreading,  
inter-arching within the minutely undulate margin, faint on both sur-  
faces; length 4.5 to 7 in., breadth 1 to 1.75 in., petiole .2 in. *Flowers*  
axillary, solitary, drooping; pedicels slender, bi-bracteolate at the base,

·35 to ·45 in. long. *Sepals* free, large, membranous, green, many-nerved and reticulate, broadly ovate, acute or acuminate, glabrous, ·75 to 1·1 in. long. *Petals* whitish, thinly coriaceous, faintly nerved, broadly lanceolate, acuminate, much contracted at the base, pubescent, 1 to 1·2 in. long, (smaller in var. *aborescens*); inner petals less than half as long, ovate, acuminate, the base contracted, pubescent. *Anthers* numerous, compressed, the apices broad, flat, pubescent. *Ovaries* few, narrow, short, 1 rarely 2-ovuled; the style long, straight, thickened upwards; stigma hollowed like a funnel, the edges toothed. *Ripe carpels* partly enveloped by the persistent calyx, ovoid, very slightly apiculate, puberulous or glabrescent, ·4 to ·5 in. long; stalks ·2 in. long. *Seeds* usually 1, rarely 2.

Perak; at a low elevations, King's Collector, No. 3019; Wray, Nos. 3379, 3558.

Var. *aborescens*, King; a small tree 15 to 25 feet high; leaves 4 to 4·5 in. long; petals coriaceous, adpressed-pubescent, about half as long as in the typical form; *sepals* only ·3 in. long.

Perak; elevations from 2,000 to 3,000 feet, King's Collector.

This possibly ought to be considered a distinct species; but as its anthers and ovaries are exactly the same as in the typical shrubby *G. tenuifolius*, I prefer to consider it a mountain form of that species. Both the typical form and the variety have remarkable stigmas, shaped like funnels and with toothed edges.

3. *GONIOTHALAMUS PRAINIANUS*, King, n. sp. A tree 50 to 70 feet high: young branches rather slender, pale; all parts, except the inflorescence, glabrous. *Leaves* membranous, oblong-oblancoate to elliptic-oblong, abruptly shortly and bluntly acuminate, the base slightly cuneate; main nerves 14 to 18 pairs, oblique, inter-arching within the margin, prominent beneath; length 7 to 11 in., breadth 2·25 to 2·8 in., petiole ·35 in. *Flowers* 1·25 to 1·5 in. in diam., on long pedicels from large, woody, puberulous tubercles at the base of the stem: pedicels 2 to 4 in. long with two minute bracteoles at the base. *Sepals* coriaceous, united so as to form a spreading cup with three broad sub-acute triangular teeth, puberulous outside, glabrous inside. *Petals* thickly coriaceous, pale yellow; the outer row large, obovate-rotund, concave, incurved, (ovate-oblong in var.) pubescent on both surfaces, nearly 1 in. long: inner row much smaller, clawed. *Stamens* numerous, the connective prolonged into a blunt, conical, puberulous, apical process. *Ovaries* narrowly oblong, glabrous; style cylindric, not lobed, truncate. *Ripe carpels* obovoid, slightly apiculate, tapering to the base, glabrous, 1 to 1·25 in. long; stalks ·25 in. long. *Seed* solitary, smooth.

Perak; King's Collector, Wray; at low elevations.

† Var.: *angustipetala*, King; petals oblong-ovate, sub-acute.

Perak: King's Collector.

A species collected by Forbes in Eastern Sumatra (Herb. Forbes, No. 3172) resembles this closely. The specimens are in fruit only, and the individual carpels being a little smaller and less obovoid, it probably belongs to a distinct species. Forbes' specimens have no flowers.

4. *GONIOTHALAMUS KUNSTLERI*, King. A shrub 4 to 10 feet high: young branches minutely rufous-tomentose, the older pale, glabrous and much striate. *Leaves* thinly membranous, oblanceolate to elliptic-ob-lanceolate, abruptly and bluntly acuminate, the base cuneate; both surfaces pale-brown when dry, minutely pellucid-punctate, glabrous; the midrib alone puberulous on the upper; main nerves 11 to 13 pairs, spreading, curved and inter-arching boldly a little within the margin, slightly prominent on the under surface: length 6 to 9 in., breadth 2 to 3.25 in.; petiole .35 in. puberulous. *Flowers* solitary, slightly supra-axillary; pedicels .15 in. long. *Sepals* green, thinly membranous, puberulous, nerved and reticulate, broadly ovate, acute, spreading, very slightly cuneate at the base, .3 to .4 in. long. *Petals* sub-coriaceous, yellow or orange-coloured; the outer lanceolate, acuminate, slightly narrowed at the base, puberulous outside, .8 to 1.25 in. long: inner petals about one-third as long, ovate, acute, pubescent. *Anthers* many, short, compressed, the tops broad, flat, pubescent. *Ovaries* about as long as the stamens, narrowly cylindric; style long, straight, thick: stigma notched. *Ripe carpels* crowded, broadly ovoid, slightly apiculate, .4 in. long.

Perak; at Gopang, King's Collector, Scortechini, Wray.

Var. *marcantha*, King; leaves narrowly elliptic or oblong, bluntly acuminate, puberulous beneath; outer petals 1.25 to 1.5 in. long.

Penang and Province Wellesley: Curtis.

5. *GONIOTHALAMUS GIGANTUS*, Hook. fil. and Thoms. Fl. Ind., 109. A tree 30 to 70 feet high; young branches very pale, glabrous. *Leaves* coriaceous, oblong, shortly acuminate, the base cuneate, the edges slightly recurved (when dry); upper surface shining, glabrous: the lower dull, puberulous, the midrib very prominent: main nerves 10 to 14 pairs, very slender, spreading, more conspicuous above than below: length 6 to 10 in., breadth 2.25 to 2.75 in.; petiole .25 in., deeply channelled. *Flowers* very large, from the axils of fallen leaves and from the younger branches; peduncles recurved, 1 in., or more, long (elongated in the fruit), pubescent. *Sepals* ovate, acute, pubescent outside, spreading or recurved, about 5 in. long. *Petals* very coriaceous, yellowish tinged with green; the outer broadly ovate to ovate-oblong, with a dark thick triangular spot at the base, 3 to 5 in. long, minutely pubescent; the inner only about .6 in. long, ovate-acute, densely golden sericeous.



*Anthers* very numerous, their apices convex. *Ovaries* hairy, 2-ovuled : style long, slender, much curved ; stigma 2-lobed. *Ripe carpels* oblong, apiculate, tapering much to the stalk, minutely granular and with obscure vertical ridges when dry, 1·25" to 1·5 in. long and ·6 in. in diam. : stalks ·75 in., stout. *Seeds* 1 or 2, oblong, slightly compressed, the testa brown. Hook. fil. Fl. Br. Ind. I, 75 : Miq. Fl. Ind. Bat. I, pt. 2, 28. *Uvaria gigantea*, Wall. Cat. 6469 A. B. (*in part*). *Anonacea* Griff. Icon. Plant. t. 652 ?

Singapore ; Wallich, Ridley, Hullett. Penang ; Curtis. Perak ; King's Collector.

6. GONIOTHALAMUS MALAYANUS, Hook. fil. and Thoms. Fl. Ind 107. A small glabrous tree, 15 to 20 feet high ; bark of branches very pale. *Leaves* coriaceous, oblong to elliptic-oblong, shortly and abruptly acuminate, the base slightly cuncate, rarely rounded, the edges recurved ; upper surface shining, the lower dull, darker (when dry) ; main nerves 12 to 15 pairs, sub-horizontal, faint ; length 5·5 to 9 in., breadth 1·5 to 2·75 in. ; petiole ·25 in., deeply channelled. *Flowers* slightly supra-axillary, solitary, greenish ; pedicels ·35 to ·5 in., pubescent, bracteolate at the base. *Sepals* ovate-triangular, acuminate, pubescent, connate at the base, persistent, ·25 in. long. *Petals* coriaceous, the outer broadly ovate, acuminate to ovate-lanceolate, minutely tomentose on both surfaces, with a triangular glabrous basal spot, keeled outside, 1 to 1·25 in. long ; the inner about a third as long, ovate, acuminate, sericeous or tomentose. *Anthers* numerous. *Pistils* about 15, the ovary hairy, ovules 3 to 4 ; style long, slender, much bent outwards ; stigma sub-capitate, unequally 2-lobed. *Ripe carpels* narrowly oblong apiculate, tapering to each end, glabrous, 1·5 in. long, and ·5 in. in diam ; stalks ·1 in., thick. *Seeds* 2 or 3, flattened-ovoid, nearly black. Hook. fil. Fl. Br. Ind. I, 75 ; Miq. Fl. Ind. Bat. I, Pt. 2, 28. *Goniotalamus Slingerlandtii*, Scheff. Tijdsch. Ned. Ind. XXXI, 341. *Uvaria* sp. Griff. Notul. IV, 710.

Malacca ; Griffith, Maingay (Kew Distrib.) No. 63. Perak ; common. Distrib. Bangka.

7. GONIOTHALAMUS FULVUS, Hook. fil. and Thoms. Fl. Br. Ind. I, 75. A shrub : young branches slender, dark-coloured, at first rufous-pubescent, afterwards glabrous. *Leaves* membranous, pellucid-dotted, oblong-oblancheolate, obtuse or with a short broad point ; upper surface glabrous, the lower puberulous ; main nerves 14 to 16 pairs, slightly prominent beneath, spreading ; length 7 to 10 in., breadth 2·5 to 3·25 in. ; petiole ·3 in., pubescent. *Flowers* solitary, axillary, pedicels ·25 in., puberulous. *Sepals* broadly ovate, obtuse, pubescent, connate at the base, ·25 in. long. *Petals* coriaceous, densely sericeous, the outer oblong-

lanceolate, attenuate to the apex, slightly keeled outside, 1 to 1·25 in. long; inner about 3 in. long; ovate, acute. *Stamens* numerous, apices of anthers very convex, puberulous. *Ovaries* oblong, pubescent; style cylindric, glabrous: stigma bifid. *Fruit* unknown.

Malacca; Griffith.

Known only by Griffith's imperfect specimens.

8. *GONIOTHALAMUS CURTISII*, King, n. sp. A shrub or small slender tree: young branches densely rusty-tomentose, the larger pale and glabrous. *Leaves* stoutly membranous, narrowly oblong to obovate-oblong, more or less abruptly and shortly acuminate, slightly narrowed to the rounded base; upper surface shining, glabrous except the puberulous midrib; the lower sparsely puberulous, the midrib and nerves dark rusty-tomentose; the latter 28 to 34 pairs, sub-horizontal, inter-arching near the margin, very prominent, as is the midrib, on the lower and depressed on the upper surface: length 9 to 15 in., breadth 3 to 5·5 in.; petiole 35, channelled, pubescent. *Flowers* solitary, from the stem; pedicels stout, decurved, with two deciduous bracteoles at the base, 6 in. long. *Sepals* large, green, rigidly membranous, conjoined into a cup with 3 broadly-ovate, sub-acute teeth, boldly nerved and reticulate, minutely rufous-pubescent, persistent; length from 75 to 1 inch. *Petals* coriaceous, velvety-tomentose, yellowish, tinged with red: the outer broadly lanceolate, acuminate, slightly narrowed and thickened at the base, from 1·25 to 1·75 in. long; the inner rather more than one-third as long, ovate, acuminate. *Anthers* numerous, compressed, linear, with acute granular conical apices. *Ovaries* numerous, narrowly elongate, densely pubescent, 1-ovuled; style straight; stigma oblique, minutely lobed. *Ripe carpels* obliquely ovoid with long pointed, slightly hooked apices, rufous-pubescent, 75 in. long; stalks only 1 in. long, stout.

Selangor; Curtis, Nos. 310 and 2316. Perak; King's Collector, No. 10548: Scortechini, No. 660.

A very distinct species.

9. *GONIOTHALAMUS GRIFFITHII*, Hook. fil. and Th. Fl. Ind., 110. A large shrub or small tree; all parts glabrous except the ovaries and carpels: young branches dark-coloured. *Leaves* coriaceous, oblong, sub-acute, or shortly and obtusely acuminate, the base cuneate; both surfaces shining and reticulate; main nerves 12 to 20 pairs, faint, spreading, inter-arching within the edge: length 7 to 12 in., breadth 1·8 to 3·5 in.; petiole 25 to 5 in., thick. *Flowers* solitary, axillary or extra-axillary; pedicel 5 to 1 in. long with a few scale-like bracteoles near the base. *Sepals* thinly coriaceous, orbicular-ovate, blunt, connate below, nerved and reticulate, persistent, 5 to 75 in. long. *Petals* thickly coriaceous;

the outer broadly lanceolate, acuminate, 1·5 to 2·5 in. long: the inner ovate, acute, '6 to '8 in long. *Anthers* with an acute apical process. *Ovaries* strigose: style long, subulate; stigma slightly bifid. *Ripe carpels* sub-sessile, oblong, '5 or '6 in. long, glabrescent or glabrous. Hook. fil. Fl. Br. Ind. I, 73; Kurz F. Flora Burma, I, 42.

Burmah: Mergui, Griffith. Moulmein, Falconer.

10. *GONIOTHALAMUS MACROPHYLLUS*, H. f. and Th. Fl. Ind. I, 74. A glabrous shrub 5 to 15 feet high; young branches very stout, dark-coloured. *Leaves* coriaceous, large, oblong-lanceolate to oblong-oblong-ovate, acute or shortly acuminate, slightly narrowed to the sub-acute or rounded base; main nerves 16 to 20 pairs, spreading, impressed above and slightly prominent beneath; length 10 to 18 in., breadth 2·5 to 4·5 in.; petiole '6 to 1 in., very stout. *Flowers* slightly supra-axillary or from the branches below the leaves, solitary or in pairs, green; pedicels '35 in. long, sub-clavate. *Sepals* broadly ovate, acute, connate at the base, '65 in., long, slightly puberulous, tinged with purple. *Petals* coriaceous, the outer oblong-lanceolate, acute or acuminate, 1 to 1·5 in. long; the inner half as long, ovate, acuminate, the edges ciliate. *Stamens* numerous, linear. *Ovaries* 12 to 18, glabrous, 1-ovuled; style slender, dilated above, stigma 2-lobed. *Ripe carpels* globular-obovoid, slightly apiculate, glabrous, '4 in. long. *Seed* pale brown. Miq. Fl. Ind. Bat. I, Pt. 2, 28: Ann. Mus. Lugd. Bat. II, 38. *Polyalthia macrophylla*, Blume Fl. Jav. Ann. 79 t. 39. *Unona macrophylla*, Blume Bijdr. I, 17.

It is possible that two species may be included here, there being some difference between the specimens in the nervation of the leaves.

Malacca; Griffith, Maingay, (Kew Distrib.) No. 62. Perak, King's Collector. Penang; Curtis. Kedah; Curtis. Distrib. Sumatra, Forbes, 1370.

11. *GONIOTHALAMUS RIDLEYI*, King, n. sp. A tree: young branches slender, puberulous. *Leaves* membranous, broadly elliptic, shortly and abruptly acuminate, the base sub-acute, pale when dry; both surfaces reticulate; the upper dull, glabrous, except the puberulous midrib and nerves, the lower shining, puberulous on the midrib, nerves and reticulations; main nerves about 6 pairs, curving, ascending; length about 8 in.; breadth 4·5 in.; petiole '25 in., puberulous. *Flowers* 1·75 to 2 in. long, in fascicles on long pedicels from warted, puberulous, woody tubercles on the stem: pedicels 2·5 to 3·5 in. long, minutely bracteolate at the base. *Sepals* coriaceous, broadly ovate-elliptic, obtuse, nerved, '6 in. long, free, spreading, puberulous. *Petals* coriaceous, pale brown; the outer elliptic-oblong to ovate, obtuse or sub-acute, with a broad thickened claw, puberulous, 1·65 to 2 in. long; inner row a little longer than the sepals, obovate, apiculate, with narrow claw. *Stamens* numerous,

long, narrow, much compressed; the apical process of the connective small, sub-conic. *Ovaries* oblong, narrow; style cylindric, puberulous; stigma 2-lobed. *Ripe carpels* obvoid-globular, tapering slightly to the short stalk, glabrous, about 1 in. long.

Singapore; at Sunga Murni, Ridley.

It is possible that in the above description the size of the leaves may be understated, as the only one which I have seen may not be of average size.

12. *GONIOTHALAMUS TAPIS*, Miq. Fl. Ind. Bat. Suppl. 371. A tree 15 to 40 feet high; all parts, except the flowers, glabrous; young branches pale brown. *Leaves* coriaceous, oblong, abruptly shortly and bluntly acuminate, the base rounded or slightly cuneate, the edges recurved (when dry); both surfaces dull, brown when dry, the lower paler; main nerves 10 to 12 pairs, thin, spreading, very indistinct, the midrib prominent beneath; length 5.5 to 9 in., breadth 2.5 to 3.25 in., petiole .3 in. *Flowers* solitary and supra-axillary, or in fascicles from tubercles on the branches; pedicels curved, .4 in. long, bracteolate at the base. *Sepals* free, ovate, acute, spreading, pubescent, persistent, .4 in. long. *Petals* coriaceous, puberulous; the outer ovate-lanceolate, acuminate, contracted and thickened at the base, 1.75 in. long; the inner ovate, acute, much contracted and thickened at the base, .65 in. long. *Anthers* numerous and with conical apices. *Ovaries* narrow, hairy; style straight; ovules solitary. *Stigma* sub-discoid-capitate, 2- to 3-lobed. *Ripe carpels* crowded, obvoid, smooth, sub-sessile, .4 to .5 in. long. Miq. Ann. Mus. Lugd. Bat. II, 35.

Perak; at low elevations, very common; Scortechini, Wray, King's Collector. Penang and Pangkore; Curtis. Distrib. Sumatra, Borneo.

13. *GONIOTHALAMUS SCORTECHINII*, King, n. sp. A shrub or small tree, glabrous, except the flowers; young branches with rather pale striate bark. *Leaves* membranous, oblanceolate or oblong-oblanceolate, very shortly acuminate, narrowed from the above the middle to the acute or sub-acute base; when dry the upper surface greenish, the lower pale brown; main nerves 18 to 24 pairs, spreading and inter-arching near the edges, slender, slightly prominent beneath; length 10 to 15 in., breadth 2.75 to 4 in., petiole .3 in. *Flowers* solitary, rarely in pairs, from the branches below the leaves; pedicels clavate, decurved, bi-bracteolate at the base, .5 in. long. *Sepals* rigidly membranous, large, orbicular-ovate, obtuse or sub-acute, much nerved and reticulate, connate below, persistent, from .65 to 1 in. long (according to age). *Petals* coriaceous, rusty-puberulous; the outer oblong-lanceolate, sub-oblique, not much longer than the full grown sepals; the inner broadly ovate, acute, about .5 in. long. *Anthers* numerous, narrow, with elongate, conical apical pro-

cesses. *Ovaries* narrow, puberulous, 1-ovuled: style straight; stigma 2- or 3-lobed. *Ripe carpels* crowded, ovoid-oblong, apiculate, glabrous, narrowed to the short stalks, .45 in. long; stalks .2 to .25 in. *Seed* smooth, pale.

Perak; at low elevations; Scortechini, Wray, King's Collector.

The leaves of this species much resemble those of *Polyalthia oblonga*, King.

14. *GONIOTHALAMUS WRAYI*, King, n. sp. A shrub 3 to 12 feet high, glabrous, except the flowers: young branches slender, very pale. *Leaves* membranous, oblanceolate to lanceolate or oblong, shortly and bluntly acuminate, the base cuneate: both surfaces pale (when dry), obscurely reticulate: main nerves 14 to 18 pairs, spreading, straight, slender and very slightly prominent even when dry: length 4.5 to 9 in., breadth 1.25 to 2 in., petiole .2 to .25 in. *Flowers* solitary, slightly supra-axillary; pedicels slender, decurved, minutely bracteolate, .35 in. (elongated to .75 in. in fruit). *Sepals* membranous, slightly nerved and reticulate, ovate, acuminate, spreading or recurved, puberulous outside, .2 in. long, persistent. *Petals* sub-coriaceous, greenish-yellow, puberulous: the outer narrowly lanceolate, acuminate, the bases thickened and not narrowed to a claw, .65 to .75 in. long: inner petals about half as long, ovate-acuminate. *Anthers* numerous, half as long as the ovaries, compressed, their apices with a long thin point from a broad base. *Ovaries* about 20, narrowly cylindric, hairy like the stout, straight style 1- to 2-ovuled: stigma truncate. *Ripe carpels* narrowly obovoid to oblong, apiculate, gradually tapering to the stalk, glabrous, .6 in. long. *Seeds* usually 1, rarely 2, oblong.

Perak: at low elevations very common; Wray, Scortechini, King's Collector.

15. *GONIOTHALAMUS UVARIOIDES*, King, n. sp. A shrub 6 to 15 feet high: all parts glabrous except the flower and fruit; young branches pale. *Leaves* thinly coriaceous, oblong, slightly obovate, slightly narrowed to the minutely cordate base: both surfaces rather dull when dry, the lower pale brown, the edges slightly recurved; main nerves 22 to 25 pairs, spreading, rather straight, inter-arching near the margin; length 10 to 15 in., breadth 3 to 6 in.; petiole .4 in., stout, channelled. *Flowers* on the trunk, (solitary?); pedicels curved, stout, .35 in. long. *Sepals* coriaceous, semi-orbicular, blunt, pubescent, 2 in. long. *Petals* very coriaceous, yellow: the outer broadly lanceolate, thickened and truncate at the base, rufous-pubescent, 1.5 in. long: inner petals like the outer but with contracted bases and only 1 to 1.2 in. long. *Anthers* with conical apices. *Ovaries* hairy; style cylindric; stigma small, truncate, minutely bifid. *Ripe carpels* oblong, tapering to each end, puberulous,

1.5 in. long, and .65 in. in diam.; stalks .7 in. long. *Seeds* 4, compressed, rugose, .5 in. long.

Perak: Ulu Slim, King's Collector, No. 10664. Ulu Bubong, King's Collector, No. 10126. Distrib., Borneo; Motley, No. 960.

Motley's Bornean specimen above-quoted is in flower only; but it so entirely resembles in leaves and wood those of my collector in Perak which are in fruit only, that I have ventured not only to consider them as belonging to the same species, but to draw up the above description of the flowers from the Bornean and of the fruit from the Perakian specimens. The species resembles *G. fulcus* in leaves and flower and *G. malayanus* in flower. The fruit is more like that of a *Uvaria* than of a *Goniothalamus*, having 4, sub-horizontal, rugose seeds.

# 15. OROPHEA, Blume.

Trees or shrubs. *Flowers* usually small, axillary, solitary, fascicled or cymose. *Sepals* 3, valvate. *Petals* 6, valvate in 2 series; outer ovate; inner clawed, usually cohering by their margins into a mitriform cap; sometimes oblong and slightly approximate below the middle, the apices divergent not vaulted: rarely without claws and in one species slightly imbricate. *Stamens* definite, 6-12, ovoid, fleshy; anther-cells dorsal, large, contiguous, the connective sometimes prolonged into a conical apical point, not truncate. *Staminodes* 0, or 3 to 6. *Ovaries* 3-15; style short or 0; ovules 4. *Ripe carpels* 1- or more-seeded, globular or oblong (very long in several species.)—DISTRIB. Species about 25; all Eastern Asiatic.

Intermediate between *Mitrephora* and *Bocagea*, having the perianth of the former and stamens of the latter.

Inner petals distinctly vaulted, the limbs coherent by their edges.

Stamens 12                   ...                   ...                   1. *O. setosa*.

Stamens 6.

★ Leaves glabrous at all ages (see also No. 5)                   2. *O. Katschallica*.

Leaves more or less pubescent (except No. 5).

Carpels globose when ripe                   ...                   3. *O. hirsuta*.

Carpels oblong when ripe.

Carpels under 2 in. in length                   ...                   4. *O. hexandra*.

Carpels 3 to 5 in. long.

Leaves quite glabrous, main

nerves 6 or 7 pairs                   ...                   5. *O. enterocarpa*.

Leaves puberulous beneath,

main nerves 10 or 12 pairs                   6. *O. maculata*.

Inner petals slightly vaulted, trapezoid                   ...                   7. *O. gracilis*.

Inner petals spreading, not vaulted and not trapezoid.

Stamens 10 or 12.

Inner petals hastate; ripe carpels globular 8. *O. hastata*.

Inner petals linear-oblong, the apices

\*divergent and recurved; ripe carpels

ovoid or slightly obovoid ...

... 9. *O. dodecandra*.

Stamens 6.

Inner petals cuneiform or cuneiform-retuse;

ripe carpels cylindric ... 10. *O. cuneiformis*.

Inner petals irregularly oblong, their

apices broad and curved outwards, ripe

carpels globular ... 11. *O. polycarpa*.

1. *OROPHEA SETOSA*, King, n. sp. A shrub: young branches densely covered with a layer of minute pubescence with numerous, long, brownish, straight bristles projecting beyond it; the older branches dark-coloured and almost glabrous. *Leaves* membranous, oblong or oblong-oblancoelate, shortly acuminate, the base rounded: main nerves 8 to 10 pairs, oblique, inter-arching near the edge; both surfaces sparsely setose, more densely so on the midrib and nerves, the lower also with sparse, minute pubescence; length 5.5 to 7.5 in., breadth 2 to 2.75 in.; petiole .05 in., setose. *Flowers* solitary, extra-axillary, about .2 in. in diam. when expanded: pedicels very slender, .75 in. long, pubescent, with a single minute bracteole below the middle. *Sepals* sub-orbicular, blunt. *Outer petals* much larger than the sepals, broadly ovate, sub-acute, pubescent outside and glabrous inside like the sepals. *Inner petals* longer than the outer, vaulted, .22 in. long, the limb trapezoid-sagittate, pubescent on the back and edges, glabrous in front; the claw narrow, shorter than the limb. *Male flower* stamens numerous, cuneate, the connective broadly truncate at the apex. *Ovaries* unknown. *Ripe carpels* 4 or 5, sessile, globose or oblong-globose, .3 in. in diam., densely and minutely pubescent and with a few long setae besides. *Seeds* solitary, rarely 2; the testa pale, rather rough; the albumen very dense.

Perak: at elevations from 800 to 1,200 feet; King's Collector, Scortechini.

2. *OROPHEA KATSCHALLICA*, Kurz in Trimen's Journ. Bot. 1875, p. 323. A small tree 25 to 30 feet high: young branches slightly puberulous at first, ultimately glabrous, black and furrowed. *Leaves* membranous, oblong-lanceolate to oblong or elliptic, shortly and bluntly acuminate, the base sub-cuneate or rounded; upper surface glabrous, shining; the lower much reticulate, slightly adpressed-puberulous; main nerves 3 to 10 pairs, ascending, slender; length 4 to 7 in., breadth

- 1.5 to 2.75 in., petiole .15 in. *Peduncles* extra-axillary, solitary, .5 to .75 in. long, with numerous ovate-acuminate, rusty-pubescent bracts. *Flowers* 1 to 4, rather large; their pedicels about .4 in. long, pubescent and with a single adpressed ovate-lanceolate bracteole. *Sepals* ovate-acuminate, adpressed-pubescent outside, sub-glabrescent inside. *Outer petals* much larger than the sepals, ovate-orbicular, acute, veined, pubescent on the outer surface and on the upper half of the inner, .4 in. long. *Inner petals* .75 in. long, trapezoid, acute, tomentose on both surfaces except a glabrous patch bearing a transverse callosity on the inner; the claw long, narrow and glabrous. *Stamens* 6 perfect, with a few imperfect in an outer row: anther-cells large, dorsal; the connective oblique, slightly produced above their apices. *Ovaries* about 3, narrowly ovoid, densely sericeous, 3-ovuled; stigmas sessile, truncate. *Fruit* unknown.

Nicobar Islands; Kurz, King's Collector.

3. *OROPHEA HIRSUTA*, King, n. sp. A shrub 8 to 12 feet high: young branches at first densely rufous-hirsute, afterwards becoming glabrous and dark-coloured. *Leaves* elliptic or elliptic-oblong, often slightly obovate, shortly and bluntly acuminate, narrowed from below the middle to the rounded minutely cordate base: upper surface glabrous, shining, the lower pale, dull, sparsely hirsute, the midrib setose at the base: main nerves 8 to 9 pairs, spreading, very faint: length 3.5 to 4.5 in., breadth 1.24 to 1.75 in.; petiole .05, setose. *Peduncles* extra-axillary, about .5 in. long, 1- to 3-flowered, rufous-hirsute like the pedicels: pedicels about .75 in. long and with several minute bracteoles. *Flowers* .5 in. in diam. *Sepals* broadly ovate, acute, coarsely hirsute outside and on the edges, glabrous inside. *Outer petals* much larger than the sepals, broadly obovate, blunt, sparsely pubescent outside and on the edges, glabrous inside, .15 in. long. *Inner petals* .25 in. long, vaulted: the limb trapeziform, rather thick, glabrous outside, pubescent inside; the claw very narrow, longer than the limb, glabrous. *Stamens* 6, in a single row, curved: anthers broad, dorsal, the connective not produced above their apices. *Ovaries* about 6, ovoid, glabrous, 1- to 2-ovuled: stigma sessile, roundish. *Carpels* 4 to 5, globular, yellow when ripe, sparsely hirsute, .4 in. in diam.; stalks .1 in.

Perak: King's Collector, No. 4283.

Only once collected. In its leaves this resembles *Mitrephora setosa*. King.

4. *OROPHEA HEXANDRA*, Blume Bijdr. 18. A small tree: young branches slender, minutely tomentose, soon becoming dark-coloured, glabrous and furrowed. *Leaves* thinly coriaceous, oblong-lanceolate to elliptic-oblong, rather abruptly acuminate, the base sub-cuneate or



rounded; upper surface glabrous, shining; the lower reticulate, puberulous, the midrib pubescent; main nerves 7 to 9 pairs, oblique: length 4·5 to 6 in., breadth 1·5 to 2·25 in., petiole ·2 in. *Peduncles* axillary or supra-axillary, slender, 1- to 3-flowered, pubescent; bracts several, subulate, hairy. *Flowers* about ·35 in. long, greenish-white. *Sepals* minute, ovate to ovate-lanceolate, densely pubescent outside. *Outer petals* thin, ovate-cordate, acuminate, pubescent; the inner larger, trapezoid with long narrow claw, glabrous with pubescent margins. *Stamens* 6, in one row. *Ovaries* about 6, pubescent, 2-ovuled. *Ripe carpels* oblong, sessile, acuminate, minutely adpressed-pubescent, 1·4 to 1·75 in. long. *Seeds* usually solitary, sometimes ·2 in. long, narrowly cylindric. Kurz For. Flora Burma, I, 49; Miq. Fl. Ind. Bat. I, pt. 2 p. 29. *O. acuminata*, A. D C. in Mem. Soc. Genev. V, 39; Hook. fil. and Thoms. Fl. Ind. 112; Hook. fil. Fl. Br. Ind. I, 91; Wall. Cat. 6432. *Bocagea hexandra*, Blume Fl. Jav. Anon. 83 t. 40.

Burma prov. Tenasserim, Wallich. Great Coco Island; Kurz. S. Andaman; King's Collectors.

Pierre (Flore Forestiere Cochinchine t. 44) figures a species called *O. Thorelii* which, as he remarks, must be closely allied to this.

5. *OROPHEA ENTEROCARPA*, Maingay ex Hook. fil. Fl. Br. India, I, 92. A small tree 15 to 30 feet high; all parts, except the inflorescence, glabrous: young branches slender, black, striate. *Leaves* membranous, ovate or sometimes obovate-lanceolate to elliptic, acuminate (sometimes abruptly so); the base rounded, sometimes sub-cuneate; both surfaces shining: main nerves 6 or 7 pairs, spreading, slender: length 2·5 to 5 in., breadth 1·2 to 2 in., petiole ·1 in. *Flowers* nodding, solitary, extra-axillary: the pedicels very slender, ·75 to 1·25 in. long, glabrous below, pubescent above and with several ovate-lanceolate bracteoles. *Sepals* small, broadly ovate, acuminate, pubescent. *Outer petals* much larger than the sepals, ovate, acuminate, puberulous, the inner a little longer (·6 to ·75 in. long); the limb elongated-trapezoid, puberulous; the claw narrow and glabrous, yellowish with a reddish band; staminodes 6. *Stamens* 6, with broad connective, not apiculate. *Ovaries* 6, cylindric, glabrous, 2- to 7-ovuled; stigma small, sessile. *Carpels* 4 to 6, elongate-cylindric, glabrous, moniliform when dry, 3 to 5 in. long and ·3 in. in diam. *Seeds* 2 to 7, linear-oblong.

Malacca: Maingay. Perak; Scortechini, King's Collector.

6. *OROPHEA MACULATA*, Scortechini MSS. A shrub or small tree: young branches slender, rusty-tomentose at first, afterwards glabrous, black and striate. *Leaves* membranous, elliptic-oblong, caudate-acuminate, narrowed from below the middle to the rounded or sub-cuneate slightly unequal base: upper surface glabrous, the lower

glabrescent, the midrib and nerves pubescent; main nerves 10 to 12 pairs, spreading, rather faint; length 3·25 to 7 in., breadth 1·5 to 2·25 in., tomentose. *Peduncles* solitary, 1- to 3-flowered, extra-axillary, very slender, .5 to 1 in. long, pubescent, with numerous, distichous, sub-deciduous, linear-lanceolate, pubescent bracts. *Flowers* large, sub-pondulous. *Sepals* narrowly lanceolate, acuminate. *Outer petals* larger than the sepals, mottled red and yellow, ovate, very acuminate, veined, pubescent on both sides, .5 in. long. *Inner petals* 1 in. long, with lanceolate, much acuminate, very pubescent limb; the claw long, narrow, pubescent. *Stamens* 6, broad, not apiculate, hairy at the base. *Staminodes* 3, orbicular. *Ovaries* 3 to 6, cylindric, very hirsute, 6- or 7-ovuled: stigma sessile. *Carpels* 4 to 6, much elongate, cylindric, puberulous, 3 to 5 in. long, and about .3 in. in diam., moniliform when dry. *Seeds* 4 to 7, linear-oblong.

Perak; Scortechini, King's Collector.

7. *OROPHEA GRACILIS*, King, n. sp. A tree 20 to 30 feet high; young branches slender, at first minutely tomentose, afterwards darkly cinereous and glabrous. *Leaves* thinly coriaceous when adult, lanceolate, much acuminate, the base cuneate or slightly rounded, both surfaces glabrous: main nerves 5 or 6 pairs, spreading, inter-arching far from the edge, very indistinct; length 2·5 to 3·5 in., breadth .9 to 1·2 in., petiole .05 in. *Flowers* solitary, .25 in. in diam., extra-axillary; pedicels .75 to 1 in. long, very thin, glabrous, jointed, and with several minute, subulate bracteoles above the middle. *Sepals* broadly ovate, sub-acute, connate at the base, spreading or reflexed. *Outer petals* larger than the sepals, ovate, acute, .15 in. long; both surfaces glabrous, the edges alone minutely pubescent. *Inner petals* .25 in. long, slightly vaulted; the limb thick, trapezoid, with pubescent edges; the claw narrow, not so long as the limb, glabrous. *Stamens* 6, in a single row, the connective much produced above the rather small dorsal anther-cells. *Ovaries* 4 to 10, ovoid, glabrous, 2-ovuled: stigma large, sessile. *Ripe carpels* 6 to 10, globular, glabrous, .45 in. in diam., their stalks .25 in. long. *Seeds* solitary or two together, depressed-globose, with a transverse groove and ridge, shining, pale.

Perak: Scortechini, King's Collector. \*

This is closely allied to the W. Peninsular *O. uniflora*, but that species has twice as many stamens.

8. *OROPHEA HASTATA*, King, n. sp. A tree 20 to 40 feet high: all parts glabrous except the inflorescence: young branches rather slender, dark-coloured. *Leaves* thinly coriaceous, elliptic to elliptic-oblong, shortly caudate-acuminate; the base cuneate, rarely rounded; both surfaces shining, the lower pale: main nerves 6 to 8 pairs, spreading,

inter-arching within the edge; length 3·5 to 5·5 in., breadth 1·6 to 2·4 in., petiole ·2 in. *Peduncles* axillary or supra-axillary, solitary, about ·25 in. long, bearing towards the apex 3 or 4 1-bracteolate, pubescent pedicels. *Flowers* ·4 in. long. *Sepals* broadly ovate, acute, pubescent, outside, glabrous inside as are the outer petals. *Outer petals* twice as large as the sepals, broadly ovate acute. *Inner petals* ·35 in. long; the limb hastate, triquetrous, thickened, the edges and the base ciliate; the claw long, narrowed to the base, glabrous. *Staminodes* 0. *Stamens* 10, in 2 rows, curved, slightly apiculate; the anther-cells large. *Ovaries* about 10, obliquely oblong, curved, pubescent, 2-ovuled; stigma small, capitate, sessile. *Ripe carpels* 5 or 6, globular, glabrous, ·4 in. in diam., their stalks about ·25 in. *Seeds* solitary.

Perak: Wray, King's Collector, at low elevations.

This is closely allied to *O. dodecandra*, Miq.

9. *OROPHEA DODECANDRA*, Miq. in Ann. Mus. Lugd. Bat. II, 25. A tree 20 to 40 feet high; young branches sparsely adpressed-pubescent, afterward glabrous dark-coloured and striate. *Leaves* membranous, elliptic, rarely elliptic-oblong, slightly unequilateral, shortly caudate-acuminate, the base cuneate; upper surface glabrous, shining, the lower paler with a few scattered, pale, adpressed hairs; main nerves 5 or 6 pairs, bold beneath, inter-arching ·25 in. from the margin; length 3·5 to 5·5 in.; breadth 1·75 to 2·3 in., petiole ·2 in. stout, channelled. *Peduncles* supra-axillary, longer than the pedicels, 3- to 7-flowered, glabrous; pedicels ·5 in. long, clustered near the apex, bracteolate above the middle. *Flowers* ·5 in. long. *Sepals* smaller than the outer petals, spreading, dotted, conjoined at the base, slightly tubercular outside, glabrous inside. *Outer petals* broadly ovate, acuminate, narrowed at the base, ·15 in. long. *Inner petals* thick, linear-oblong, blunt, puberulous outside, slightly arched below the middle, the apices divergent and recurved. *Staminodes* 0. *Stamens* 12, in 2 rows; the connective rather narrow, prolonged beyond the apices of the large, broad, dorsal anthers. *Ovaries* 6 to 8, oblong, curved, oblique, glabrous, 2-ovuled; stigma oblong, sessile. *Ripe carpels* ovoid or slightly obovoid, blunt, glabrous, ·85 in. long; their stalks ·8 to ·9 in. *Seed* solitary, sub-rotund or oblong, with rugose, pale, scaly testa.

Perak; Scortechini, King's Collector; at low elevations.

10. *OROPHEA CUNEIFORMIS*, King, n. sp. A tree 20 to 40 feet high; young parts rusty-pubescent or tomentose; the branchlets rather stout; ultimately glabrous, dark-coloured and furrowed. *Leaves* thinly coriaceous, oblong, narrowly elliptic or oblanceolate-oblong, more or less sharply acuminate, very little narrowed to the rounded or minutely cordate base; upper surface at first with many long, thin, pale,

adpressed hairs, ultimately glabrous; lower softly but rather coarsely pubescent, the midrib and 8 to 12 pairs of oblique, rather prominent main nerves rufous-tomentose; length 3·5 to 6 in., breadth 1·1 to 2·2 in.; petiole '05, tomentose. *Peduncles* 4- or 5-flowered, solitary, supra-axillary, slender, sub-glabrous below, rufous-sericeous above, longer than the pedicels; bracts numerous, linear-lanceolate; pedicels '3 in. long, rufous-sericeous like the outer surface of the sepals and outer petals, bracteolate at the base. Flower buds globose. *Sepals* ovate, much acuminate, glabrescent inside like the outer petals. *Outer petals* ovate, acute, veined. *Inner petals* with a cuneiform, sometimes reflex, thick limb and a short, narrow claw. *Staminodes* 3, in an outer row, sub-orbicular, fleshy. *Stamens* 6, with broad flat connective, not produced at the apex, and large dorsal anthers. *Ovaries* about 6, oblong, oblique, densely villous, 2- or 3-ovuled, *Stigma* sessile, broad. *Ripe carpels* 2 to 4, sessile, cylindric, tapering a little at each end, puberulous, 1·5 to 1·75 in. long and about '35 in. in diam. *Seeds* 2, oblong.

Perak; Scortechini, King's Collector.

This is readily distinguished from the closely allied species *O. maculata*, by its scorpioid cymes, globular flower-buds, and by the cuneiform (not lanceolate) limbs of its petals.

11. *OROPHEA POLYCARPA*, A. DC. in Mem. Soc. Genev. V, 39. A large shrub or small tree: young branches slender, pubescent at first, but speedily glabrous, furrowed and dark-coloured. *Leaves* membranous, ovate to ovate-oblong, obtusely and very shortly acuminate, the margins undulate, the base rounded or narrowed; both surfaces glabrous; main nerves 6 to 8 pairs, spreading, faint; length 2 to 4 in., breadth 1 to 1·75 in., petiole '05 in. *Peduncles* axillary or supra-axillary, slender, 1- to 3-flowered, pubescent; bracteoles several. *Sepals* ovate, acute, very pubescent. *Outer petals* ovate, acuminate, more than twice as large as the sepals, pubescent on the outer, glabrous on the inner, surface. *Inner petals* twice as long as the outer, irregularly oblong, the apices broad and curved outwards, the base slightly narrowed, puberulous outside, glabrous within, '4 in. long. *Stamens* 6 or 7 in a single row; the anther-cells quite dorsal, separate, the connective flat and very slightly prolonged above their apices. *Ovaries* about twice as many as the stamens, glabrous, ovate, oblique: stigma small, sessile, sub-capitate. *Ripe carpels* globular, glabrous, shining, '35 in. in diam.: their stalks '25 in. long. *Seeds* 1 or 2. Hook. fl. and Thoms. Fl. Ind. 111; Hook. fl. Fl. Br. Ind. I, 91; Kurz F. Flora Burma, I, 49; *Anonacea* Griff. Ic. Pl. Ind. Or. IV, t. 654. Wall. Cat. 6431. *Bocagea polycarpa*, Steud. Nomen. 212. *Melodorum? monospermum* Kurz in Andaman Report, App. B. p. 1. *Bocagea polycarpa*, Steud.

S. Andaman; Kurz, King. Burmah: Martaban, Wallich.

*Orophea undulata*, (Pierre Fl. Forest. Coch.-Chine t. 45) must be closely allied to this, as must also the same author's *O. anceps*, (l. c. t. 46).

## 16. MITREPHORA, Blume.

Trees. *Leaves* coriaceous, strongly ribbed, plaited in vernation. *Flowers* usually terminal or leaf-opposed, sometimes 1-sexual. *Sepals* 3, orbicular or ovate. *Petals* 6, 2-seriate, valvate; outer ovate, thin, veined; inner clawed, vaulted and cohering. *Stamens* oblong-cuncate; the anther-cells dorsal, remote, the connective broadly truncate at the apex. *Ovaries* oblong; style oblong or clavate, ventrally furrowed; ovules 4 or more, 2-seriate. *Ripe carpels* globose or ovoid, stalked or sub-sessile.—**DISTRIB.** Species about 10; tropical Asiatic.

Flowers hermaphrodite ... .. 1. *M. Maingayi*.

Flowers unisexual.

Ripe carpels ovoid, apiculate, rugulose ... 2. *M. reticulata*.

„ „ globular, not apiculate, not rugulose 3. *M. macrophylla*.

„ „ sub-globular, sub-truncate at each end, rugulose ... 4. *M. Prainii*.

1. MITREPHORA MAINGAYI, Hook. fil. and Thoms. Fl. Br. Ind. 1, 77. A tree 20 to 50 feet high: young branches softly rufous-tomentose afterwards glabrous dark-coloured and striate. *Leaves* coriaceous, oblong to ovate, (oblong-lanceolate in var. *Kurzii*), acute or shortly and bluntly acuminate, the base rounded or sub-cuneate; upper surface shining, glabrous except the pubescent midrib; under surface glabrescent, the midrib and nerves thinly adpressed-pubescent; (pubescent in var. *Kurzii*); main nerves 6 to 10 pairs, oblique, curving, slightly prominent beneath: length 3 to 5·5 in., breadth 1·5 to 2 in., petiole 3 to 4 in. *Flowers* 1 in. or more in diam., axillary or leaf-opposed, solitary or 2 or 3 in a multi-bracteolate and tomentose raceme; pedicels 5 to 1·5 in. (lengthening with age), bracteolate. *Sepals* connate into a cup, broadly ovate, acute, (or obtuse in var.) tomentose. *Petals* rather thinly pale yellow mottled with red, all more or less pubescent outside, the outer orbicular or obovate with undulate erose edges, slightly narrowed at the base, (oblong in var. *Kurzii*); inner shorter, the outer very pubescent inside, vaulted, ovate or cordate with a long linear foot. *Anthers* numerous, short, with broad flat smooth tops. *Ovaries* rather narrowed into the short style; ovules 4; stigma sub-capitate, thinly *Ripe carpels* broadly ovoid, blunt at each end, densely tomentose, more long, and 75 in. in diam.: their stalks stout, 75 in. *Seeds* 4, rounded or *M. Teymannii*, Scheff. in Flora LH (1869), 302. *Uvaria obtusifolia*, pale,

Blume), Hook. fil. and Thoms., Fl. Ind. 113; Hook. fil. Fl. Br. Ind. I, 76; Wall. Cat. 6484.

Penang; Wallich, Curtis. Pangkore; Curtis. Malacca; Maingay, (Kew Distrib.) No. 65. Perak: King's Collector, Scortechini, Wray. Burma, Kurz. Distrib. Java.

Var. *Kurzii*, Leaves oblong-lanceolate, acuminate to elliptic: peduncles of racemes woody, 1 in. or more long, tomentose; outer petals narrowly oblong. *M. vandaeiflora*, Kurz F. Flora Burma I, 45.

Burma; Kurz, Brandis.

Allied to the Cambodian species *M. Thorellii*, (Pierre Fl. Forest. Cochinchine, t. 37).

2. *MITREPHORA RETICULATA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 77. A tree 20 to 30 feet high: young branches tawny-tomentose, ultimately glabrous and dark-coloured. Leaves narrowly oblong, often slightly obovate, acuminate, the base cuneate or rounded; both surfaces shining, reticulate, glabrous; the midrib puberulous on the upper, sparsely setose on the lower, surface; main nerves 12 to 14 pairs, spreading, prominent, distinct beneath; length 5 to 14 in., breadth 2 to 4.5 in.; petiole .25 in., swollen. Flowers .2 in. in diam., axillary, solitary or in pairs, or in few-flowered, puberulous cymes; pedicels long, slender, with many lanceolate bracteoles. Flowers as in *M. macrophylla*, monœcious. Ripe carpels ovoid, apiculate, rugose, hoary, .8 in. long and .65 in diam. Seeds 2.

Kurz F. Flora Burma, I, 44. *Orophea reticulata*, Miq. Ann. Mus. Lugd. Bat. II, 23. *Uvaria reticulata*, Blume Fl. Jav. Anon. 50, t. 20. *Pseulvaria reticulata*, Miq. Fl. Ind. Bat. i. pt. 2, 30.

Burma: prov. Tenasserim; Helfer. Malacca; Maingay (Kew Distrib.), No. 64. Perak: Wray, King's Collector, Scortechini; not so common as *M. macrophylla*, Oliver.

This species has the inner petals rather larger than the outer and much vaulted; and in this respect it conforms to the characters of *Orophea*; but its stamens are uvarioid in character and they are numerous; its flowers, moreover, are unisexual. The characters of *Mitrephora* therefore preponderate, and it is better located in the latter genus. But there is no doubt it forms a connecting link between the two genera.

3. *MITREPHORA MACROPHYLLA*, Oliver in Hook., Ic. Plant, t. 1502. glob. all tree; young branches more or less puberulous, speedily becoming glabrous. Leaves thin, cinereous. Leaves thinly coriaceous, elliptic-obovate or obovate, acute or shortly acuminate; the base rounded, length 1.5 to 2 in.; both surfaces puberulous at first but speedily glabrous, *Melodorum* reticulate; main nerves 14 to 20 pairs, oblique, in- *Bocagea* 15 in. from the margin, prominent beneath; length 7 to 13

in., breadth 1.75 to 4 in.; petiole .25 in., swollen. *Flowers* .25 to .3 in. in diam., axillary, usually in pairs, or in cymes, 1 to 2 in. long, the cymes minutely pubescent; bracts few, lanceolate; pedicels long, with several broadly lanceolate, partly deciduous bracteoles, or ebracteolate. *Sepals* free, or connate below, reniform, or broadly ovate, puberulous outside and on the edges, glabrous inside. *Outer petals* larger than the sepals, orbicular-ovoid, sub-acute, slightly narrowed at the base, puberulous on both surfaces. .15 in. long. *Inner petals* .3 in. long, thick, vaulted reniform-sagittate, puberulous, with a glabrous callosity on the inside near the base, the edges pubescent; the claw shorter than the limb, pubescent. *Male flower*: *stamens* very numerous, short, cuneate; the connective truncate, small and not concealing the tops of the anthers; pistils 3, or a few rudimentary. *Female flower*; *staminodes* in two imperfect rows. *Ovaries* about 12, ovoid-cylindric, oblique, pubescent, 4-ovuled; stigmas sessile, large, fleshy, truncate, often oblique. *Ripe carpels* globose, densely and minutely tawny-tomentose, .4 or .5 in diam.; stalks .2 in. long. *Seeds* several, compressed, the testa membranous.

Penang; Maingay, Curtis. Perak; Scortechini, King's Collector, Wray.

This species, although rare in Penang, is very common in Perak. Specimens of it vary considerably in several respects. In some plants the young shoots are densely puberulous, in others they are almost glabrous; the leaves also vary in size and in amount of pubescence. In the specimen figured by Professor Oliver (Hook. Ic. Pl. 1562), the flowers are in axillary pairs; but, in the majority of the Perak specimens, they are in cymes. The species is practically dioecious, the staminate flowers having no ovaries at all or only a few rudiments; while the pistillate flowers have rarely a few perfect stamens, and not always any staminodes. The best marks of distinction between this and *M. reticulata*, of which this must be a very close ally, are the smaller number of the nerves in the leaves of this and the ovoid shape of its rugose fruit. In its leaves this plant somewhat resembles some of the species of *Popowia*. And, inasmuch as its inner petals are larger than the outer and are vaulted, it is related to *Orophea*, from which however its numerous uvarioid stamens and unisexual habit exclude it.

4. MITREPHORA PRAINTII, King, n. sp. A tree 30 to 40 feet high; young branches tawny-pubescent, speedily becoming glabrous and dark-coloured. *Leaves* membranous, elliptic-oblong, rather abruptly and shortly acuminate, the base cuneate and often slightly unequal-sided; upper surface glabrous except the depressed, strigulose midrib; lower surface much reticulate, glabrous but with a few scattered hairs on the

midrib and 12 to 14 pairs of rather bold, oblique, curving nerves; length 6 to 9 in., breadth 2.25 to 3 in., petiole .25 in., pubescent. *Flowers* bisexual, from the axis of the fallen leaves, solitary, .4 in. in diam.; pedicels about .5 in. long, softly tomentose, minutely bracteolate at the base. *Sepals* broadly ovate, acute, concave, tomentose outside, glabrous inside. *Outer petals* much larger than the sepals, ovate-orbicular, sub-acute; tomentose outside, glabrous inside. *Inner petals* longer but narrower than the outer; the limb trapezoid, densely tomentose, glabrous inside at the base; the claw narrow, about as long as the limb, tomentose on both surfaces. *Stamens* in the male flower numerous, short, cuneate; the apical process of the connective truncate, concealing the apices of the dorsal anthers. *Pistils* 0. *Female flowers* unknown. *Ripe carpels* sub-globose, rather truncate at base and apex, rugulose, minutely pubescent, .65 in. in diam. *Seeds* about 5, plano-convex, the testa membranous, rugulose.

Andaman Islands; Prain, King's Collector.

The inner petals of this species are undoubtedly longer than the outer; but they are much narrower. Technically they are the petals of *Orophea* rather than of *Mitrephora*; but the numerous Uvarioid stamens and the unisexual habit are those of the latter, to which I accordingly refer it. I have been able to examine only a few flowers of the species, and these are all tetramerous; but whether this arrangement is normal or only occasional I am unable to say until larger suites of specimens are obtained.

#### 17. *POPOWIA*, Endl.

Trees. *Flowers* small, sub-globular, opening but slightly, usually hermaphrodite, sometimes polygamous, extra-axillary or leaf-opposed. *Sepals* 3, ovate, valvate. *Petals* 6, valvate in 2-series, (the inner series imbricate in *Kurzii*), more or less orbicular; outer like the sepals, spreading; inner thick, concave, connivent, acute, the tip sometimes inflexed. *Stamens* indefinite or sub-definite, short, cuneate; anther-cells dorsal, remote. *Carpels* about 6, ovoid; style large, oblong or sub-clavate, straight or recurved; ovules 1-2 on the ventral suture, rarely 1, basal, erect. *Ripe carpels* bearded, globose or ovoid, stalked.—DISTRIB. About 20 Asiatic species, 12 Australian and 1 African. (The Australian and African species may be generically separable).

There has been considerable variety of opinion as to the place of the genus *Popowia* amongst the genera of *Anonaceae*. The genus was founded by Endlicher (Genus No. 4710) to accommodate the species named *Bocagea pisocarpa* by Blume (Flora Javae (*Anonaceae*) 90, t. 45).



Endlicher placed it next to *Orophea* from which it is distinguished by its inner row of petals being free and having their apices inflexed in aestivation, while those of *Orophea* are clawed, vaulted, attached by their edges, and not inflexed in aestivation. In their *Flora Indica*, Hooker filius and Thomson added the species *P. ramosissima* to the original plant of Endlicher, with a remark to the effect that *Uvaria Vogelii* H. f. should be included in the genus. Farther they associated *Popowia* with the genera *Orophea*, *Mitrephora* and *Goniothalamus* in the tribe *Mitrephoreae*. In their *Genera Plantarum*, Mr. Benthams and Sir Joseph Hooker take a different view of the position of *Popowia* and, in the arrangement adopted in that great work, *Popowia* is put amongst the *Unoneae*; *Orophea* is relegated to the tribe *Miliuseae*; while *Goniothalamus* and *Mitrephora* are retained side by side in the tribe *Mitrephoreae*. Now the character of the tribe *Unoneae* is:—"petals flat, slightly unequal, or those of the inner row smaller than those of the outer, or absent," while in several of the *Popowias*, e. g., *P. pisocarpa*, *P. ramosissima* the inner petals are longer than the outer. Baillon, whose arrangement of tribes differs from that of Messrs. Benthams and Hooker, puts *Popowia* into *Unoneae*, leaving *Mitrephora* and *Orophea* side by side in his tribe *Oxyntireae*.

Dr. Scheffer differs from the opinion of the authors of the *Genera Plantarum* and of Baillon and rather inclines to that of the authors of the *Flora Indica*. He points out with much force that the proper place for *Popowia* is in the tribe characterised by its "outer petals being open, the inner connivent over the andro-gynœcium, erecto-connivent or connate"—that is to say in the tribe *Mitrephoreae* of these authors. The stamens of *Popowia* present considerable diversity, but on the whole they have the character of those of *Uvariae* rather than those of *Unoneae*. As Scheffer remarks, there is little difference between the genera *Orophea* and *Mitrephora* except that the outer petals of *Mitrephora* are usually larger than those of *Orophea*. And if M. Baillon's plan of reducing the number of the genera in *Anonaceae* were to be carried out, Dr. Scheffer would suggest the union of these two and of *Popowia* into a single genus, from which would be excluded, however, all the African species. Of this new genus *Orophea* would be the typical form, and the other two would form sub-genera.

There is no doubt than in externals many *Popowias* are like *Oropheas*, and the non-unguiculate character of the inner petals of *Popowia* is really the chief character which separates them.

I venture to follow Dr. Scheffer and the authors of the *Flora Indica* in putting *Popowia*, *Orophea* and *Mitrephora* together in the tribe *Mitrephoreae*.

**Flowers hermaphrodite.**

Both surfaces of leaves glabrous except the nerves.

Both surfaces minutely granular; nerves

9 or 10 pairs, sparsely pilose beneath ... 1. *P. paniciflora*.

Lower surface granular, the midrib and

6 to 8 pairs of nerves pubescent ... 2. *P. ramosissima*.

Both surfaces shining, reticulate, glabrous

except the tomentose midrib on the

upper; nerves about 10 pairs, very faint 3. *P. nitida*.

Upper surface of leaves glabrous, the lower

minutely granular and sub-strigose; nerves

4 or 5 pairs ... 4. *P. Helferi*.

Upper surface of leaves glabrous except the

puberulous midrib, the lower yellowish-to-

mentose; nerves 11 to 13 pairs; fruit very

large ... 5. *P. fetida*.

Upper surface of leaves glabrous except the

tomentose midrib and 8 to 10 pairs of nerves;

lower surface pubescent and sub-granular ...

6. *P. perakensis*.

Both surfaces minutely granular; upper short-

ly puberulous, lower pubescent; nerves 8 to

11 pairs ... 7. *P. fusca*.

Both surfaces minutely granular; upper with

a few scattered hairs; lower fuscous, densely

and softly pubescent; the nerves 6 or 7

pairs, tomentose or pubescent ... 8. *P. velutina*.

Both surfaces, but especially the lower, softly

pubescent; nerves about 10 pairs ... 9. *P. tomentosa*.

**Flowers polygamous.**

Upper surface of leaves glabrous except the

puberulous midrib; nerves 10 or 11 pairs;

flowers .5 to .75 in. in diam.; petals of inner

row larger than those of outer, valvate, their

apices inflexed in bud ... 10. *P. nervifolia*.

Upper surface of leaves sub-granular, minutely

and sparsely adpressed-pubescent; nerves 9

to 12 pairs; flowers .4 in. in diam.; inner

petals slightly smaller than the outer, im-

bricate ... 11. *P. Kurzii*.

Both surfaces of leaves glabrous, the lower

silvery, shining; nerves 7 pairs ... 12. *P. Hookeri*.

1. *POPOWIA PAUCIFLORA*, Maingay MSS. Hook. fil. Fl. Ind. I, 69. A tree? Young branches slender, cinereous, strigose. *Leaves* membranous, elliptic-lanceolate, acuminate, the base acute; both surfaces glabrous, minutely granular; the midrib and 9 or 10 pairs of oblique, little curving main nerves sparsely pilose beneath; length 5 to 6 in., breadth 1·5 to 2 in., petiole ·2 in., pubescent. *Flowers* extra-axillary, solitary or axillary, ·25 in. in diam.; pedicels ·15 to ·25 in. long, with a basal bracteole, rusty-strigose. *Sepals* minute, ovate. *Petals*; the outer small and like the sepals; the inner three times as large, sub-orbicular, concave, their apices inflexed. *Stamens* many. *Ovaries* about 6, strigose; ovule solitary, erect. *Ripe carpels* sub-sessile, globular, glabrous.

Malacca: Maingay (Kew Distrib.) No. 56.

Known only by Maingay's imperfect specimens; an obscure species.

2. *POPOWIA RAMOSISSIMA*, Hook. fil. and Thoms. Fl. Ind. 105. A small spreading tree; young branches at first rufous-pubescent; the older dark-coloured and furrowed. *Leaves* membranous, sub-sessile, narrowly elliptic to lanceolate, sometimes slightly obovate, shortly, bluntly and abruptly acuminate, the base rounded or slightly narrowed; both surfaces glabrous, the lower granular and pubescent on the midrib and 6 to 8 pairs of ascending rather straight nerves; length 2·75 to 4 in., breadth 1 to 1·75 in., petiole ·05 in. *Flowers* globular in bud, leaf-opposed, solitary or in small fascicles, ·2 in. in diam.; pedicels ·15 to ·25 in. long (longer in fruit), minutely bracteolate, rufous-tomentose. *Sepals* broadly triangular-ovate, acute, nearly as large as the outer petals and like them tomentose outside, and glabrous inside. *Petals* sub-equal, coriaceous, rotund, concave; the inner rather larger and with incurved points. *Stamens* short, with very broad truncate concave heads. *Ovaries* 5 or 6, villous; ovules 1 or 2. *Ripe carpels* globose with short stalks, pubescent, ·25 to ·35 in. in diam. Miq. Fl. Ind. Bat. I, Pt. 2, 27; Hook. fil. Fl. Br. Ind. I, 68. *Guatteria ramosissima*, Wall. Cat. 7294, 8006. *Popowia rufula* and *P. affinis* Miq. Ann. Mus. Lugd. Bat. II, 20.

In all the provinces, common. Distrib. Sumatra, Borneo.

3. *POPOWIA NITIDA*, King, n. sp. A shrub? Young branches sparsely and softly rufous-pubescent, the bark brown. *Leaves* thinly coriaceous, oblong-lanceolate to oblong-ovate, bluntly acuminate, the base rounded; both surfaces reticulate, glabrous and shining, the midrib tomentose on the upper; main nerves about 12 pairs, very faint, spreading and forming double arches inside the edge; length 2·5 to 4 in., breadth ·6 to 1·25 in., petiole ·1 in. *Flowers* few, in short extra-axillary racemes, sub-globular, ·25 in. in diam.; pedicels about as long as the flowers, each with 2 sub-orbicular, stem-clasping, pubescent bracteoles, *Sepals* orbicular, concave, puberulous on both surfaces, about ·15 in. in

diam. *Petals* sub-equal, about twice as large as the *sepals*, orbicular-ovate, sub-acute, cordate at the base, the edges incurved. *Stamens* about 27, in three rows; anther-cells linear, lateral, the apical process of the connective obliquely truncate, papillose. *Pistils* numerous, forming a large mass with their stigmas agglutinated. *Ovaries* sub-cuneate, pubescent especially near the truncate apex; stigma very large and viscous, sessile; ovules 1 to 3, ascending. *Ripe carpels* ovoid, pointed, glabrous, .4 to .5 in. long. *Seeds* 1 to 3, compressed, the testa pale brown, shining.

S. Andaman: King. Nicobars: Kurz.

In its leaves this much resembles *Uzaria micrantha*, H. f. and T. as which I have reason to believe some specimens of this have been distributed from the Calcutta Herbarium.

4. *POPOWIA HELFERI*, Hook. fil. and Thoms. Fl. Ind. I, 69. A small spreading tree; young branches coarsely hairy. *Leaves* membranous, lanceolate or oblong-lanceolate, acuminate, the base narrowed but rounded; upper surface glabrous; the lower granular, sub-strigose, especially on the midrib; main nerves indistinct, about 4 or 5 pairs, ascending: length 2 to 4 in., breadth .8 to 1.25 in., petiole .05 in. *Flowers* minute, globose, extra-axillary: peduncles .05 to .2 in., tomentose. *Sepals* ovate, strigose. *Outer petals* like the *sepals*, the inner orbicular, larger than the outer, concave, very strigose, their apices inflexed. *Stamens* 15. *Ovule* solitary. *Carpels* about 6, globular, strigose. Kurz. F. Flora Burm. I, 39.

Andamans; North of Port Mouat; Kurz. Burmah: Tenasserim, on King's Island; Helfer.

A very little known species closely resembling *P. Beldomiana*, H. f. and Th.

5. *POPOWIA FETIDA*, Maingay MSS., Hook. fil. Fl. Br. Ind. I, 69. A large tree; young branches tawny-tomentose. *Leaves* sub-coriaceous, elliptic-lanceolate, shortly caudate-acuminate, the base sub-acute; upper surface glabrous except the puberulous midrib, lower densely covered with yellowish-grey tomentum as are the petioles; main nerves 11 to 18 pairs, rather prominent beneath, curved, spreading, inter-arching close to the margin; length 4.5 to 6.5 in., breadth 1.6 to 2 in., petiole .2 in. *Flowers* solitary, .35 in. in diam.; pedicels .2 in., tomentose. *Sepals* minute, ovate, obtuse. *Petals* unequal, the outer ovate-elliptic, obtuse, yellow; the inner slightly larger, apiculate, concave, the margins thick. *Stamens* about 30, the connective large. *Ovaries* about 6, strigose, 2-ovuled. *Ripe carpels* few, very large, oblong-ovoid, obtuse, sessile, densely and shortly yellowish-tomentose, 2.25 in. long, and 1.5 in. in diam. *Seed* solitary, oblong, the testa bony.

Malacca; Maingay, (Kew Distrib.) No. 55.

6. *POPOWIA PERAKENSIS*, King, n. sp. A shrub 6 to 15 feet high; young branches densely and minutely dull rusty-tomentose, the older dark and furrowed. *Leaves* elliptic to oblong-elliptic, very shortly and rather abruptly acuminate, the base slightly narrowed, sometimes sub-oblique; upper surface glabrous, the midrib and nerves tomentose; lower pubescent, sub-granular: main nerves 8 to 10 pairs, spreading, slightly prominent beneath; length 4 to 5·5 in., breadth 2 to 2·5 in.; petiole 1 in., tomentose. *Flowers* extra-axillary, usually in pairs (but not contemporaneous) 3 in. in diam.; pedicels 4 in. long, ferrugineous-tomentose, minutely bractcolate. *Sepals* smaller than the petals, semi-orbicular, acute, coarsely tomentose outside, sub-glabrous inside. *Petals* thick, ovoid-orbicular, sub-acute, sub-concave, densely whitish-sericeous outside, glabrous within; the inner row slightly larger than the outer, neither their edges nor apices incurved. *Stamens* numerous, flattened, with truncate, corrugated heads. *Ovaries* about 10, thin, glabrous, except a few long hairs near the base, 2-ovuled: stigmas large, rounded. *Ripe carpels* few, ovoid, with sub-truncate apices, slightly narrowed to the stalks, glabrous or sparsely pubescent, with several horizontal constrictions when ripe 5 in. long and 25 in. in diam.; stalks 25 to 5 in. long. *Seeds* 2, superposed, plano-convex.

This resembles *P. ramosissima* in its leaves but has much larger flowers of which the inner petals are not inflexed and the carpels have 2 seeds.

Perak: King's Collector, Wray; from 200 to 2,500 feet.

7. *POPOWIA FUSCA*, King, n. sp. A tree 40 to 50 feet high; young branches densely covered with purplish-brown tomentum; the older cinerous, sub-pubescent and much furrowed. *Leaves* coriaceous, oval-oblong, obtuse or sub-acute, the base rounded; both surfaces minutely granular, the upper shortly puberulous, the lower pubescent, the midrib and 8 to 11 pairs of spreading, rather prominent main nerves tomentose on both; length 2·5 to 3·5 in., breadth 1·4 to 1·8 in.; petiole 2 in. purplish-tomentose like the flower pedicels. *Flowers* in small extra-axillary fascicles from small bracteate tubercles, 25 in. in diam.; pedicels 15 to 25 in. *Sepals* ovate-obtuse, tomentose outside, glabrous inside. *Petals* sub-equal, rotund, very thick and fleshy, tomentose outside, puberulous inside. *Ripe carpels* few, globular, densely tomentose, 25 in. in diam.; stalks 1 to 2 in. long, tomentose. *Seeds* solitary.

Perak, near Ulu Kerling, at an elevation of 500 feet, King's Collector, No. 8602.

This much resembles *P. velutina*, King, but its leaves are more oval, have more nerves, and are not so pubescent.

8. *POPOWIA VELUTINA*, King, n. sp. A tree 20 to 40 feet high;

young branches covered with minute soft deep brown tomentum. *Leaves* elliptic-oblong, to ovate-elliptic, acute or shortly and narrowly acuminate, slightly narrowed to the rounded sub-unequal base; both surfaces minutely granular, the upper with a few scattered hairs; the lower fuscous and more densely and softly pubescent, both the midrib and nerves tomentose or pubescent; main nerves 6 or 7 pairs, spreading, indistinct; length 3 to 5 in., breadth 1·4 to 1·8 in., petiole 1 in. *Flowers* solitary or in pairs, extra-axillary, about 25 in. in diam., pedicels densely tomentose, 35 in. long, bracteolate. *Sepals* broadly ovate, sub-acute, densely tomentose outside, glabrous inside, persistent in the fruit. *Petals* sub-equal, thick, sub-orbicular, very tomentose outside, glabrous inside. *Ripe carpels* few, sometimes solitary, ovoid, blunt, slightly oblique at the base and slightly narrowed to the stalk, minutely velvety-pubescent, 5 in. long and 35 in. in diam.; stalks 2 in., tomentose; torus small. *Seed* solitary, glabrous, rugose, vertically furrowed.

Perak, at Kinta; at elevations under 1,000 feet; King's Collector.

A species very like *P. fusca*, but with shorter, fewer-nerved leaves; evidently not common. None of the collectors' specimens have fully developed flowers, and the foregoing description of these is taken from a bud.

9. *POPOWIA TOMENTOSA*, Maingay MSS. Hook. fil. Fl. Br. Ind. I, 70. A tree; young branches softly rusty-tomentose, when older black and rugose. *Leaves* elliptic-oblong to elliptic, acute or shortly acuminate, the base rounded, slightly unequal-sided; both surfaces, but especially the lower, softly pubescent; main nerves about 10 pairs, slightly prominent, spreading; length 4·5 to 5·5 in., breadth 1·75 to 3 in.; petiole 1 in., tomentose. *Flowers* extra-axillary, sub-sessile, 25 in. in diam. *Sepals* broadly ovate, connate, slightly smaller than the petals. *Petals* slightly unequal, villous outside, glabrous inside; the outer ovate, thick; the inner larger, very thick and concave, oblong, connivent. *Stamens* about 25. *Ovaries* 7 to 9, oblong, pubescent; ovules 2. *Ripe carpels* globose, slightly pubescent, 5 to 74 in. in diam., 2-seeded; their stalks 35 in., pubescent.

Malacca; Maingay, (Kew Distrib.) No. 54. Penang: Curtis, No. 648. Perak; Scortechini.

I am not satisfied that there are not two species involved here, the one with broader leaves and shorter pubescence.

10. *POPOWIA NERVIFOLIA*, Maingay MSS. ex Hook. fil. Fl. Br. Ind. I, 60. A small tree 12 to 25 feet high: young branches at first densely rusty-tomentose, afterwards dark-coloured and furrowed. *Leaves* coriaceous, from oblong-lanceolate or ob-lanceolate to elliptic-oblong, shortly abruptly and bluntly acuminate, the base acute; upper surface shining,

glabrous except the puberulous midrib; lower paler, sparsely rusty-pubescent; main nerves 10 or 11 pairs, oblique, rather prominent on the lower surface; length 5·5 to 8·5 in., breadth 1·8 to 3 in.; petiole ·35 to ·5 in., rusty-pubescent. *Flowers* polygamous, extra-axillary, solitary or 2 or 3 together, sub-globose, from ·5 to ·75 in. in diam.; pedicels, stout, tomentose, ·15 to ·25 long, with 2 bracts nearly as large as the sepals. *Sepals* ovate-orbicular, acute, slightly smaller than the outer petals, very thick, villous-tomentose outside and glabrous inside as are all the petals: inner petals larger than the outer, their apices much inflexed in bud. *Stamens* numerous, with flat, rhomboid heads. *Ovaries* numerous, hirsute. *Carpels* numerous, cylindric-ovoid, apiculate, narrowed to the stalk, sparsely strigose, ·5 in. long and ·25 in. in diam.; stalks ·2 to ·3 in. long, strigose-pubescent: torus globular, ·4 in. in diam. *Seed* pale, shining.

Malacca: Maingay (Kew Distrib.) No. 53. Perak: common at low elevations.

Allied to *P. Kurzii*, but with larger flowers which have their inner petals valvate with much inflexed edges.

11. *POROWIA KURZII*, King. A shrub or small tree; young branches at first tawny-pubescent, afterwards dark-coloured, glabrous and furrowed. *Leaves* sub-coriaceous, oblong-lanceolate, or elliptic-oblong sub-acute or shortly and bluntly acuminate, narrowed to the sub-cuneate (sometimes almost rounded) base; upper surface sub-granular, minutely and sparsely adpressed-pubescent; lower sparsely pubescent; main nerves 9 to 12 pairs, oblique, inter-arching close to the edge, rather prominent beneath; length 5 to 9 in., breadth 1·5 to 3 in.; petiole ·2 to ·25 in., tomentose. *Flowers* polygamous, solitary, or in pairs, sub-sessile, extra-axillary, sub-globose, ·4 in. in diam.; pedicels tomentose, ·1 to ·2 in. long, bracteolate. *Sepals* smaller than the petals, valvate, semi-orbicular, and, like the petals, tomentose externally and glabrous internally. *Petals* sub-equal, concave, the outer ovate-orbicular, valvate: the inner slightly smaller than the outer, imbricate. *Stamens* numerous, flattened, elongate, with linear, lateral anther-cells and flat, oblique, rhomboid apices. *Ovaries* (often absent) about 10, elongate, pubescent, the stigmas clavate. *Fruit* unknown. *Polyalthia macrophylla*, Hook. fil. and Thoms. Fl. Br. Ind. I, 63. *P. dubia* Kurz F. Flora Burma, I, 38. *Guatteria macrophylla*, Blume Bijdr. 19; Fl. Javæ Anon. 96. t. 97; Miq. Fl. Ind. Bat. I, Pt. 2, 47.

South Andaman; Kurz, King's Collector. Burmah; province Tenasserim; Falconer, Kurz.

This species appears to be practically dioecious. In its flowers the inner petals are distinctly imbricate; they are not connivent, and

their points are not inflexed. And in these respects they do not answer to the diagnosis of *Popowia* as heretofore understood. I have therefore ventured to modify the generic character of *Popowia* in these points, and to institute a section of it to receive this and other two species. This species is closely allied to the plant originally described and figured by Blume as *Guatteria macrophylla*, (Fl. Jav. Anon. 96 t. 47,) and to receive which Miquel founded his genus *Tricalcaria* (Ann. Mus. Lugd. Bat. II, 19). But, in Blume's and Miquel's plant, the inner petals are distinctly valvate, although their apices are not inflexed. And in the non-inflexion of its petals it also does not conform to the character of *Popowia* as originally defined by its founder Endlicher.

12. *POPOWIA HOOKERI*, King. A shrub; young branches dark-coloured, glabrous. Leaves thinly coriaceous, broadly lanceolate or oblanceolate, acute or acuminate, the base acute: both surfaces glabrous, the lower silvery, shining: main nerves about 7 pairs, spreading, ascending, curving, rather prominent beneath, evanescent at the tips; length 5.5 to 7 in., breadth 1.6 to 2.4 in. Flowers solitary or in fascicles of 2 or 3 from short extra-axillary, woody tubercles, polygamous, minute; "the males as in *Popowia Kurzii* but smaller; the females with many, densely pubescent ovaries and a few imperfect stamens; bracts many, minute, strigose. Carpels many, .75 in. long, oblong, granulate, glabrous; stalk .35 in." (*Guatteria pallida*, H. f. and Th. Fl. Ind., 143 (not of Blume). *Polyalthia argentea*, Hook. fil. and Thoms. Fl. Br. Ind. I, 67.

Assam and Sylhet; in dense forests, Hook. fil. and Thomson; Naga Hills, Masters. Khasia: Griffith.

A species of which I have seen only imperfect specimens. The description given above of the flowers is copied from Sir Joseph Hooker. In my opinion the plant is a *Popowia* rather than a *Polyalthia* and to the former genus I have ventured to remove it.

#### Doubtful Species.

*Popowia parvifolia*, Kurz in Journ. of Botany for 1875, p. 324. Of this I have seen only leaf specimens with a few detached fruits. It appears to have also had the MSS. name *P. nitida* given to it by Kurz.

#### 18. OXYMITRA, Blume.

Climbing shrubs. Leaves parallel-nerved; nervules transverse, not forming intra-marginal loops. Flowers leaf-opposed or extra-axillary. Sepals 3, valvate, connate below. Petals 6, valvate, in 2 rows, outer large, long, flat or triquetrous and narrow, leathery, more or less spreading or connivent; inner much smaller, ovate-lanceolate or oblong (long and narrow in *O. filipes* and *O. glauca*), conniving over the stamens and



ovaries. *Stamens* many, linear-oblong or cuneate, truncate; anther-cells dorsal, remote (small and ovoid in *O. glauca*). *Ovaries* oblong, strigose; style oblong or clavate, recurved; ovules 1-2, sub-basal, ascending. *Ripe carpels* 1-seeded, stalked.—*Distrib.* About 28 species, Asiatic and African.

A genus of which the flowers have some resemblance to those of *Goniothalamus*: but in this the inner petals are not contracted into a claw as in *Goniothalamus* and the calyx in this is smaller and not persistent.

Outer petals flat ... 1. *O. affinis*.

Outer petals concave.

Pedicels slender, much longer than the flowers 2. *O. filipes*.

Pedicels shorter than the flowers.

Leaves oblong-elliptic, more or less obovate,

blunt ... 3. *O. calycina*.

Leaves oblong-elliptic to oblong-lanceolate  
or elliptic-lanceolate, not obovate, acute,  
or acuminate.

Outer petals expanded and concave in  
the lower third; the inner only one  
fourth as long as the outer, very  
acuminate ...

4. *O. biglandulosa*.

Outer petals narrowly linear-lanceo-  
late, slightly expanded and concave  
at the very base ...

5. *O. glauca*.

1. *OXYMITRA AFFINIS*, Hook. fil. and Thoms. Fl. Br. Ind. I, 70. A spreading shrub or climber: young branches at first densely rusty tomentose, afterwards dark-coloured and glabrous. *Leaves* membranous, elliptic to oblong-elliptic, sometimes slightly obovate, acute or very shortly acuminate, rarely obtuse, the base rounded or slightly narrowed; upper surface shining, minutely scaly, glabrous except the pubescent midrib; under surface slightly glaucous, pubescent especially on the midrib and nerves; main nerves 8 to 14 pairs, spreading, ascending, rather prominent on the lower surface; length 3.5 to 10 in., breadth 1.25 to 4.5 in.; petiole .3 in., tomentose. *Flowers* solitary, extra-axillary; pedicels .25 to .4 in. *Nepals* slightly connate at the base, spreading, broadly ovate or orbicular-ovate, sub-acute, 3- to 7-nerved, adpressed-pubescent, .5 in. long and slightly narrower than the base of the petals, persistent in the fruit. *Petals* flat, very unequal; the outer thinly coriaceous, oblong-lanceolate, sub-acute, the midrib thick and with several strong sub-parallel nerves, adpressed-pubescent on both surfaces, 1.5 to 1.75 in. long and .4 to .6 in. broad; inner petals thickly cori-

ceous, ovate, sub-acute, '5 in. long, pubescent outside, glabrous inside. *Ripe carpels* cylindric, blunt at each end, pubescent, '5 to '8 in. long and '3 in. in diam.: stalks pubescent, '2 in. long. *Seed* solitary.

Malacca; Maingay, (Kew Distrib.) No. 39. Perak; King's Collector, Scortechini. Distrib., Siam.

2. *OXYMITRA FILIPES*, H. f. and Th. Fl. Br. Ind. I, 71. A climber: young branches softly brown-tomentose, dark-coloured and lenticellate when old. *Leaves* membranous, oblong-lanceolate or oblong-elliptic, often slightly obovate, acute or shortly acuminate, slightly narrowed to the sub-cordate sometimes slightly oblique base; upper surface glabrous, minutely scaly, sometimes pubescent, the midrib and nerves always so; under surface paler, sub-glaucous, pubescent, the midrib tomentose; main nerves 12 to 14 pairs, spreading, prominent beneath; secondary nerves obliquely transverse, prominent: length 4'5 to 7'5 in., breadth 1'4 to 2'5 in.; petiole '2 to '2'5 in., tomentose. *Flowers* very long and narrow, often curved, 1'75 to 2'5 in. long, solitary on slender extra-axillary pedicels 3 or 4 in. long, which are pubescent and have a subulate bract near the middle. *Sepals* '25 in. long, spreading, ovate, acute, pubescent. *Petals* very unequal; the outer fleshy, very narrow, triquetrous, expanded and concave at the base, pubescent; the inner less than one fifth of the outer in length, lanceolate with caudate-acuminate apex, glabrous. *Stamens* numerous: ovaries 1-ovuled. *Ripe carpels* numerous, ovate-cylindric, shortly apiculate, softly pubescent, '5 in. long and '2'5 in. in diam.; stalks '3 in. long, pubescent. *Seed* solitary, pale.

A species readily distinguished in this genus by the extreme length and narrowness of the outer petals. Evidently closely allied to *O. cuneiformis*, Miq. (*Polyalthia cuneiformis*, Bl. Fl. Javae Anon. 75 t. 35, 36b, 37), which it resembles in that respect as also in its filiform, elongated pedicels.

Malacca; Maingay, (Kew Distrib.) No. 60. Perak: King's Collector.

3. *OXYMITRA CALYCINA*, King, n. sp. A slender, woody creeper; young branches densely rusty tomentose. *Leaves* coriaceous, oblong and sub-acute or cuneiform-oblong, very blunt or even emarginate, always slightly narrowed to the rounded or minutely cordate base; upper surface glabrous, shining, the midrib sometimes rufous-pubescent; under surface pale, glaucous, pubescent especially on the midrib and nerves: main nerves 7 to 14 pairs, prominent on the under, impressed on the upper, surface, spreading; the secondary nerves obliquely transverse, prominent: length 6 to 12 in., breadth 2'65 to 7'5 in., petiole '2 to '4 in., rufous tomentose. *Flowers* solitary, extra-axillary; pedicels '3 to 1 in.,

rufous-tomentose, bearing two bracts, one small, the other large, obovate, ribbed. *Sepals* free, nearly half as long as the outer petals, elliptic, sub-acute; the edges undulate, rufous-tomentose on both surfaces. *Petals* thick, lanceolate, caudate-acuminate, the midrib prominent, the base concave, both rows glabrous inside, the outer about 1 to 1.25 in. long, tomentose outside; the inner about .5 in. shorter, connate into a narrow, acute cone, puberulous outside. *Ovaries* 1-ovuled. *Ripe carpels* elliptic, apiculate, pubescent, .35 in. long: stalks .2 in., pubescent.

This closely resembles *Ocymitra cuneiformis*, Miq. of which Blume (under the name of *Polyalthia cuneiformis*) gives an excellent description and three admirable figures (Fl. Javae Anon. 75 t. 35, 36D. and 37. But in Blume's plant the flowers are much larger, the petals are falcate, while the sepals are much smaller and have caudate apices: the pedicels too are much longer and have smaller bracteoles.

Perak: Ulu Bubong at elevations of 500 to 1,000 feet, King's Collector, No. 10604. Singapore: Ridley. Penang: Curtis.

4. *ONYMITEA BIGLANDULOSA*, Scheffer in Nat. Tijdsch. Ned. Ind. XXXI, 341. A creeper 50 to 100 feet long; young branches minutely rufous-sericeous, afterwards dark-coloured and glabrous. *Leaves* coriaceous, elliptic to elliptic-oblong, acute or shortly acuminate, the edges slightly recurved when dry, the base rounded or slightly cuneate; upper surface glabrous, the midrib puberulous; the lower paler, subglaucescous, puberulous or glabrescent; main nerves 7 to 9 pairs, ascending, prominent beneath; length 3.5 to 7.5 in., breadth 2 to 3.5 in., petiole .2 to .4 in. *Flowers* shortly pedicelled, solitary, extra-axillary, 1 to 1.15 in. long: pedicels .4 in. long (elongating in fruit) angled, slender, with 1 subulate bracteole. *Sepals* fleshy, ovate, much acuminate, spreading or reflexed, adpressed, rusty-puberulous. *Petals* fleshy, yellow, very unequal: the outer lanceolate-oblong, obtuse, expanded and concave in the lower third, rusty adpressed-pubescent; the midrib prominent, sub-glabrous inside; the inner only as large as the sepals, with broad bases (cleft in the middle) and long acuminate points. *Ripe carpels* oblong-ovoid, blunt at each end or slightly apiculate at the apex, yellow when ripe, puberulous or glabrous, .75 in. long: stalks .5 in. *Polyalthia biglandulosa*, Hook. fil. Fl. Br. Ind. I, 65. *Guatteria biglandulosa*, Blume Fl. Javae Anon. 102, t. 51; Miq. Fl. Ind. Bat. I, Pt. 2, p. 48; Hook. fil. and Thoms. Fl. Ind. 143.

Malacca; Griffith, Mainstay, (Kew Distrib.) No. 49. Selangor; Ridley. Perak, King's Collector. Distrib.: Malayan Archipelago.

The structure of the flowers of this species appears to me to be that of an *Ocymitra* rather than of a *Polyalthia* or *Guatteria*, and therefore I have transferred it to this genus.

5. *OXYMITRA GLAUCA*, H. f. and Th. Fl. Ind. 146; Hook. fil. Fl. Br. Ind. I, 71. A slender woody climber: young branches slightly tomentose, soon becoming glabrous. *Leaves* thinly coriaceous, elliptic, elliptic-lanceolate to lanceolate, obtuse, acute or shortly acuminate; the base rounded, sometimes slightly narrowed; upper surface glabrous, the midrib and sometimes the nerves pubescent; the lower very pale, glaucous, glabrous or sparsely puberulous, the midrib pubescent; main nerves 8 to 12 pairs, spreading, prominent beneath: length 4 to 6 in., breadth 1·5 to 2 in.; petiole ½ in., pubescent. *Flowers* solitary, extra-axillary, narrow and elongate; pedicels slender, ½ in. long, with a median subulate bract, longer in fruit. *Sepals* connate at the base, broadly ovate, much acuminate, adpressed-pubescent, ½ in., long. *Petals* very unequal: the outer thickly coriaceous, linear-lanceolate, sub-acute, slightly expanded and sub-concave at the base, outside minutely pubescent; inside glabrous, the midrib prominent: inner petals with sub-orbicular bases (cleft in the middle), and long acuminate points, glabrous, only about one-fifth as long as the outer. *Ovaries* hairy; ovule solitary. *Carpels* many, ovoid, slightly apiculate, ¼ in. long and ⅕ in. in diam., minutely tomentose; stalks slender, ⅞ in. long. *Mag. Fl. Ind. Bat. I, Pt. 2, 50.*

Penang, Malacca: Maingay (Kew Distrib.) No. 58. Perak; common at low-elevations. *Distrib.*: Sumatra, Beccari, No. 626.

#### 19. *MELODORUM*, Dunal.

Climbing shrubs. *Flowers* terminal, axillary and leaf-opposed, fascicled or panicled; buds triquetrous. *Sepals* 3, small, valvate, connate below. *Petals* 6, valvate, in 2 rows; outer plano-convex or trigonous: inner triquetrous above, hollowed below on the inner face. *Stamens* many; anther-cells dorsal, contiguous; top of connective more or less flattened, triangular, quadrate or orbicular. *Pistils* many, free; style oblong; ovules 2 or more. *Ripe carpels* berried.—*Distrib.*:—species about 35. Tropical Asia and Africa; Australia.

Section I. *MELODORUM* proper. *Outer petals* oblong-ovate; ovaries hairy, ovules usually more than 4. *Seeds* smooth (unknown in *M. litseuifolium*).

Flowers not more than ¼ in. long (often ½ in. in *M. fulgens*), flower-buds broadly pyramidal.

Flowers ½ to ⅔ in. long, in few-flowered, lax, axillary racemes; leaves beneath hoary-pubescent with a superficial layer of flexuose hairs: ovules 4

1. *M. litseuifolium*.  
Flowers ¼ to ½ in. long; solitary, or in

few-flowered terminal or leaf-opposed  
cymes; leaves beneath sparsely and  
minutely strigose: ovules 4 ... 2. *M. fulgens*.  
Flowers .5 in. or more in length (see also  
*M. fulgens*).

Flower-buds broadly pyramidal.

Flowers racemose, rarely solitary.

Leaves glabrous above except the  
midrib, beneath densely golden-  
brown sericeous. Ripe carpels  
ovoid-globose, 1.25 in. long, their  
stalks 2 to 3 in. long ... 3. *M. manubriatum*.

Flowers in axillary or terminal  
panicles. Leaves minutely pubes-  
cent above, softly brown-tomen-  
tose beneath: ripe carpels glo-  
bose to ovoid, velvety-tomentose,  
1 to 2.25 in. long; stalks .75 to  
1.75 in. ... 4. *M. latifolium*.

Flowers always solitary and axil-  
lary. Ripe carpels cylindric,  
sub-tubercular, 1 to 1.75 in. long

*M. cylindricum*.

Flower-buds narrowly pyramidal, race-  
mose or paniculate.

Leaves glabrous above except the  
midrib, beneath glaucous hoary-  
puberulous. Ripe carpels glo-  
bose or ovoid-globose, tubercled,  
1 in. long, their stalks 1 in. ... 6. *M. hypoglaucom*.

Leaves glabrescent or glabrous  
above, except the midrib; beneath  
softly rufous-pubescent. Ripe  
carpels globular, densely and  
minutely dark brown-tomentose,  
.8 in. in diam.; their stalks  
slightly longer ... 7. *M. parviflorum*.

Leaves harshly pubescent above,  
uniformly and softly pubescent  
beneath. Ripe carpels globose,  
harshly and minutely pubescent,  
1.1 in. in diam.; stalks slender,  
twice as long ... 8. *M. sphaerocarpum*.

Section II. PYRAMIDANTHE. Outer petals very long, linear-lanceolate, 1·2 to 5 in. long. *Flowers* solitary or in pairs, axillary, rarely leaf-opposed (cymose in *M. lanuginosum* and *M. rubiginosum*.)

Ovules more than 4.

Flowers 1·25 to 1·5 in. long; outer petals rufous-lanate externally; ripe carpels sub-globose, .79 in. in diam. ... 9. *M. lanuginosum*.

Flowers 1·25 to 1·5 in. long; outer petals minutely rufous-tomentose externally; ripe carpels oblong, tapering to both ends, 1·5 to 2 in. long ... 10. *M. Maingayi*.

Flowers 1·5 to 2 in. long; outer petals minutely rufous-tomentose outside; ripe carpels ovoid, tuberculate, 1·4 in. long ... 11. *M. prismaticum*.

Ovules 4.

Flowers 3 to 5 in. long; outer petals adpressed-puberulous externally ... 12. *M. macranthum*.

Section III. KENTIA. Outer petals not much longer than broad, broadly ovate or sub-orbicular, with broad thick margins: flowers axillary; ovaries glabrous, 2 to 8-ovuled: seeds pitted.

Ovules about 8: ripe carpels ovoid or ovoid-globose; leaves oblong-lanceolate ... 13. *M. elegans*.

Ovules 2; ripe carpels globular: leaves elliptic or elliptic-oblong, sometimes ob-ovate ... 14. *M. pisocarpum*.

1. MELOPORUM LITNEÆFOLIUM, King, n. sp. A powerful climber: young branches densely but minutely rusty-tomentose, afterwards tuberculate and sub-glabrous. *Leaves* coriaceous, oblong-ovate to oblong, acute, the base rounded or slightly cuneate; upper surface greenish when dry, glabrous, shining except the rufous-pubescent midrib; lower reticulate; uniformly hoary-pubescent with a superficial layer of deciduous yellowish or reddish flexuose hairs; main nerves 8 to 10 pairs, oblique, curving, prominent beneath; length 2·75 to 4·25 in., breadth 1·35 to 1·6 in. *Flowers* .2 to .25 in. long, in few-flowered lax axillary rufous-tomentose racemes or in terminal panicles; pedicels .25 to .35 in. long with a single small median bracteole. *Sepals* broadly ovate-acute, concave, connate at the base, spreading, .1 in. long. *Petals* broadly ovate-oblong, acute, leathery; outer .3 in. long, slightly concave and glabrous at the base, otherwise puberulous inside, rufous-tomentose outside; the inner petals much smaller, hoary-puberulous except the pitted glabrous concavity at the base inside. *Stamens* numerous, apical process of the connective broadly and bluntly triangular;

filaments short. *Ovaries* few, oblong, oblique, rufous-pubescent, 4-ovuled; stigma lateral, oblong. *Ripe carpels* unknown.

Perak: King's Collector, Nos. 4063 and 4986.

The flowers of this resemble those of *M. fulgens*, H. f. and Th., but they are smaller and more numerous than those of *M. fulgens*; the petals of this species also are thinner and the apical process of the anthers is broader and blunter. The leaves too of this are broader and, in the indumentum on their lower surface, they differ considerably from those of *M. fulgens*. Fruit of this species is as yet unknown. The ovaries have only 4 ovules.

2. *MELODORUM FULGENS*, Hook. fil. Fl. Br. Ind. 120. A large climber; young branches minutely tawny-pubescent, speedily becoming glabrous and dark-coloured. *Leaves* oblong-lanceolate, acuminate, the base rounded or sub-acute; upper surface pale olivaceous when dry, glabrous, the midrib strigose; under surface brown when dry, sparsely and minutely strigose, especially on the midrib; main nerves 11 to 13 pairs, oblique, curving; length 3 to 4.5 in., breadth 1.2 to 1.5 in.; petiole .25 to .4 in. pubescent. *Flowers* .4 to .5 in. long, solitary or in terminal or leaf-opposed, few-flowered cymes; pedicels .3 to .4 in. long, adpressed tawny-pubescent with one sub-medial and one basal bracteole. *Sepals* broadly ovate, sub-acute, connate at the base, spreading, .1 in. long, pubescent outside, glabrous inside. *Petals* thick; the outer flat, ovate-oblong, sub-acute, tawny-pubescent outside, glabrous at the base inside, .5 in. long; inner petals like outer but concave at the base, only .3 in. long and glabrous, except near the apex outside. *Stamens* numerous; apical process of connective of the outer lanceolate and as long as the anthers, that of the inner shorter. *Ovaries* narrowly oblong, oblique, curved, minutely pubescent, with 4 ovules in two rows: style lateral, half as long as the ovary, stigma small. *Ripe carpels* ovoid-globose densely and minutely silky tawny-tomentose like the stalks, 1 to 1.5 in. long, and .9 in. in diam.; stalks .85 to 1.5 in. long, stout. *Seeds* oblong, plano-convex, brown, shining. Hook. fil. Fl. Br. Ind. I, 82. Miq. Fl. Ind. Bat. I, Pt. 2, 35. *Ucari fulgens* and *Myristica Finlaysonian*, Wall. Cat. 6482 and 6793.

Malacca, Perak, Singapore. Distrib. Borneo, Philippines.

3. *MELODORUM MANCURIATUM*, Hook. fil. and Thoms. Fl. Ind. 118. A large creeper: young branches minutely rufous-pubescent. *Leaves* thinly coriaceous, oblong-lanceolate, acuminate, the base rounded or slightly narrowed; upper surface olivaceous when dry, glabrous, the midrib rufous-pubescent. lower uniformly covered with rather thin brown or golden sericeous tomentum; main nerves 12 to 18 pairs, oblique, slightly curved, rather prominent beneath; length 2 to 4.5 in.,

breadth .75 to 1.5 in.; petiole .3 in., tomentose. *Flowers* .6 to .75 in. long, leaf-opposed or extra-axillary, in short racemes, rarely solitary; pedicels .25 to .75 in., softly pale rufous-tomentose, with one broad clasping bracteole near the base. *Sepals* broadly ovate, shortly sub-acuminate, spreading, connate at the base, sericeous outside, glabrous inside. *Petals* leathery, ovate-lanceolate, sub-acuminate, concave, the outer .6 to .75 in. long, outside sericeous, inside puberulous in the upper half, glabrous in the lower; the inner petals smaller, minutely pubescent in the upper half outside and near the apex inside, otherwise glabrous, the base very concave. *Stamens* numerous, the connective bluntly triangular at the apex. *Ovaries* numerous, oblong, densely sericeous; ovules 8 in 2 rows; stigma sessile, glabrous, bifid. *Ripe carpels* numerous, ovoid-globose, with thick pericarp, about 1.25 in. long, densely rufous-tomentose; stalks 2 to 3 in. long. *Seeds* about 8, in two rows. Hook. fl. Fl. Br. Ind. I, 79; Miq. Fl. Ind. Bat. I, Pt. 2, 35. *Melodorum bancanum*, Scheff. Nat. Tijds. XXXI, 343. *Uvaria manubriata*, Wall. Cat. 6456.

Penang, Malacca, Singapore. Perak: very common. Distrib.: Bangka.

4. *MELODORUM LATIFOLIUM*, Hook. fl. and Thoms. Fl. Ind., 116. A large climber; young shoots velvety rufous-tomentose. *Leaves* coriaceous, oblong or narrowly elliptic, sub-acute or obtuse, the base rounded; upper surface minutely pubescent, the midrib tomentose; lower surface uniformly covered with short, soft, brown tomentum; main nerves 16 to 24 pairs, spreading, bold, not inter-arching: length 3 to 7.5 in., breadth 1.75 to 2.5 in.; petiole .4 to .7 in., stout, channelled, tomentose. *Flowers* from .6 to 1.25 in. in diam. when expanded, brown, in lax axillary or terminal racemes or panicles; pedicels .35 to .5 in. with bracteole at the base. *Sepals* broadly ovate, blunt, connate into a flat triangular cup, .25 in. wide, tomentose outside, glabrous within like the outer petals. *Petals* thick, fleshy, ovate, acuminate, .4 to .7 in. long; the inner much smaller. *Stamens* very numerous, the apex of the connective triangular, acute; anther-cells linear, lateral, *Ovaries* about 6, obliquely oblong, densely sericeous, 6- to 8-ovuled; stigma small, sessile. *Ripe carpels* globose to ovoid, slightly apiculate and slightly tapering to the base, densely velvety and minutely tomentose, 1 to 2.25 in. long and 1 to 1.2 in. in diam.: stalks stout, velvety, .75 to 1.75 in. long; Hook. fl. Fl. Br. Ind. I, 79; Miq. Fl. Ind. Bat. I, pt. 2, 35; Wall. Cat. 9411. *M. molliissimum*, Miquel Fl. Ind. Bat. Suppl. 374. *Uvaria latifolia*, Blume Fl. Jav. Anon. t. 15. *Unona latifolia*, Dunal Anon. 115. *Uvaria longifolia*, Bl. Bijdr. 13.

Malacca; Griffith. Singapore; Maingay, Hullett. Perak: very common. Distrib.:—Sumatra, Java, Philippines.



*Uvaria latifolia*, Blume, as described and figured by that author has larger flowers than the common Perak plant and its carpels are globular, whereas those of the Perak plant are ovoid and apiculate. The plant figured by Blume does, however, occur there, but it is not common. The forms may be characterised thus:—

Var. *typica*: flowers .7 in. long: fruit globular, not apiculate, 1 in. in diam. *Uvaria latifolia*, Blume l. c. t. 15. Perak, Java.

Var. *ovoides*: flowers .5 in. long: fruit ovoid, slightly apiculate, often oblique, as much as 2.25 in. long, very oblique and warty when young. *M. latifolium*, H. f. and Th. Fl. Br. Ind. 79. Malacca, Perak, Singapore. The common form in the Malay Peninsula.

5. *MELODORUM CYLINDRICUM*, Maingay in Hook. fil. Fl. Br. Ind. I, 80. A climber: young branches minutely rusty-pubescent, speedily glabrous and dark-coloured. *Leaves* coriaceous, elliptic-oblong, brownish when dry, acute or acuminate, the base rounded or slightly narrowed; upper surface quite glabrous, the lower paler, minutely pubescent; main nerves 8 to 10 pairs, spreading, very faint; length 2.5 to 4.25 in., breadth 1.6 to 1.8 in., petiole .5 in. *Flowers* .5 in. long, solitary, axillary, drooping; buds short, pyramidal, adpressed, brown-pubescent: pedicel short, stout, with minute bracteole. *Sepals* small, triangular, connate, forming a flat spreading cup. *Outer petals* triangular-ovate, triquetrous with an excavated base; the inner very small, triangular, glabrous. *Stamens* numerous, the apex of the connective orbicular. *Ovaries* 4 to 6, sericeous. *Ripe carpels* cylindric, curved, both ends obtuse, sub-tubercular, minutely brown-pubescent, 1 to 1.75 in. long and .35 to .75 in. in diam.; pericarp thin; stalk .5 in. long, stout. *Seeds* many, horizontal, in two series, compressed, .65 in. long, shining, with a small cartilaginous arillus.

Malacca; Maingay (Kew Distrib.) No. 78. Singapore: Ridley, No. 2115.

6. *MALODORUM HYPOGLAUCUM*, Miquel in Ann. Mus. Lugd. Bat. II, 37. A strong creeper: young branches minutely rufous-pubescent, ultimately glabrous, rather pale and much tubercled. *Leaves* thinly coriaceous, oblong-lanceolate to oblong-elliptic, acute or shortly acuminate, the base rounded or cuneate; upper surface glabrous except the rufous-puberulous midrib; lower minutely hoary-puberulous, the 10 or 12 pairs of bold oblique curving main nerves ultimately glabrous and darker-coloured; length 3 to 5.5 in., breadth 1.35 to 2.2 in., petiole .25 in. *Flowers* .5 to .8 in. long, in lax, 2- to 3-flowered, axillary racemes or (by abortion of the leaves) in lax, terminal, 10- to 12-flowered panicles; pedicels as long as the flowers, slender; bracteoles 1 or 2, minute. *Sepals* ovate, acute, concave, conjoined only at the base, rufous-pubescent outside; puberulous within. *Petals* leathery, linear-lanceolate,

the base expanded and concave: the outer minutely rufous-tomentose on the external surface, paler and pubescent on the internal, .5 to .8 in. long, concave for their whole length: the inner one-third shorter with a glabrous concavity at the base only, the rest triquetrous, and puberulous. *Stamens* numerous; apical process of connective large, broader than the anther-cells, sub-globular. *Ovaries* about 12, oblong, golden-silky: with 4 to 6-ovules in 2 rows: stigma large sub-capitate; style short. *Ripe carpels* globose or ovoid-globose, tubercled, puberulous or glabrescent, 1 in. long; stalks about the same length, striate. *Seeds* about 4 or 5, oval, compressed, smooth, brown, shining.

Perak: Scortechini, King's Collector.

This plant agrees fairly well with the only specimens of *Melodorum hypoglaucom*, Miq. which I have been able to consult. It also agrees fairly with Miquel's description of that species. But its petals and stamens, and its ovaries externally are rather those of *Nylopia* than of *Melodorum*; although its habit, its torus and carpels are emphatically those of the latter genus. In the number of ovules it agrees with the majority of the species of *Melodorum*. It thus forms a connecting link between the two genera.

7. *MELODORUM PARVIFLOREM*, Scheffer in Nat. Tijdsch. Ned. Ind. XXXI, 344. A powerful climber; young shoots minutely rusty-tomentose, the bark dark-coloured. *Leaves* coriaceous, more or less broadly elliptic, abruptly acute; the base broad, rounded; upper surface pale yellowish-green when dry, when young minutely stellate-pubescent, when old glabrescent or quite glabrous, the midrib always tomentose; under surface softly rufous-pubescent, the nervation and venation very prominent; main nerves 13 to 15 pairs, oblique, curving, inter-arching close to the edge; length 3 to 6 in., breadth 2.25 to 3.2 in., petiole .4 in. *Flowers* .5 in. long, in lax axillary or terminal rusty racemes often more than half as long as the leaves: pedicels .4 to .6 in. long with 1 or 2 small bracteoles. *Sepals* triangular, spreading, connate at the base, rusty-tomentose outside, glabrescent inside like the petals, .1 in. long. *Petals* thick, leathery, oblong-lanceolate with broad bases; the outer .5 in. long; the inner smaller, concave at the base, triquetrous in the upper half. *Stamens* numerous, the connective with compressed sub-quadrate apical appendage. *Ovaries* narrow, elongate, densely sericeous, 6- to 8-ovuled. *Ripe carpels* globular, sometimes very slightly apiculate, densely but minutely dark-brown tomentose, .8 in. diam.; stalks rather longer, slender, tomentose.

Perak: King's Collector.—Distrib.: Bangka.

A species closely allied to *M. sphaerocarpum*, Blume. The leaves of this are, however, larger, the upper surface is stellate-tomentose

when young and dries a pale yellowish-green; the flower-racemes are much longer and laxer, and the flowers larger.

8. *MELODORUM SPHAEROCARPUM*, Miq. Fl. Ind. Bat. I, pt. 2, p. 35. A strong climber: young branches and all other parts more or less dark rusty-velvety tomentose. *Leaves* elliptic-oblong, obtuse and very slightly apiculate, slightly narrowed to the rounded base; upper surface with harsh, short pubescence, the midrib tomentose; lower surface uniformly and minutely soft-pubescent: main nerves 8 to 12 pairs, oblique not inter-arching at the tips, prominent beneath; the connecting veins transverse oblique, rather prominent, length 2·5 to 4·5 in., breadth 1·25 to 2 in., petiole ·35 in. *Flowers* ·6 or ·7 in. in diam., in axillary or terminal racemes or panicles; pedicels ·35 to ·5 in. long with a small supra-basal bracteole. *Sepals* ovate-acuminate, connate at the base, spreading, minutely tomentose outside, glabrescent inside. *Petals* thick, leathery, brown outside, pink within, ovate, acuminate, slightly pouched at the base; the outer ·3 to ·35 in. long, tomentose outside, puberulous within: the inner smaller than the outer, more concave at the base, glabrous or glabrescent, the upper part very thick. *Stamens* numerous, the apex of the connective thick, obliquely triangular: anther-cells linear, lateral. *Ovaries* about 6, elongate, oblique, pubescent, with 6 to 8 ovules: style short, glabrous: stigma small. *Ripe carpels* globular, harshly and minutely pubescent, 1·1 in. in diam.: stalks rather slender, about twice as long. *Unona sphaerocarpa*, Blume Bijdr. 12: Fl. Javae Aeon. 79 t. 16.

Perak: King's Collector.

This is allied to *M. latifolium*; but has smaller leaves with fewer nerves; its pubescence is very dark rusty, not tawny; and the apices of the anthers are truncate, not bearing a broad triangular, acute point. It is also allied to *M. parviflorum*, Scheff.

9. *MELODORUM LANUGINOSUM*, Hook. fil. and Thoms. Fl. Ind. 117. A strong creeper; young branches softly rufous-tomentose. *Leaves* coriaceous, oblong, sometimes sub-obovate-oblong, abruptly acute or shortly acuminate, rarely obtuse, the base rounded; upper surface glabrous, the midrib rufous-tomentose, olivaceous when dry; lower surface densely rufous-lanate; main nerves 12 to 20 pairs, oblique, curving, inter-arching close to the edge, prominent beneath; length 3·5 to 9 in., breadth 1·9 to 3·5 in.; petiole ·4 to ·6 in., stout, tomentose. *Flowers* 1·25 to 1·5 in. long, axillary or leaf-opposed, solitary, or in short 2- to 4-flowered cymes; pedicels stout, lanate, ·5 in. long, with a single basal bracteole. *Sepals* ovate, spreading, slightly connate, golden or rufous-lanate outside, glabrous inside like the outer petals. *Petals* thick, leathery, oblong-lanceolate from a broad base, sub-acute, the outer 1·25

to 1·5 in. long; the inner smaller, glabrescent or glabrous, concave at the base. *Stamens* numerous, the connective obliquely triangular at the apex; the anther-cells very narrow, lateral. *Ovaries* obovoid, oblique, curved, densely sericeous, 4- to 6-ovuled; style glabrous. *Ripe carpels* sessile, shortly stalked, sub-globose, narrowed to the base; densely and softly rufous-tomentose, about 75 in. in diam. when ripe; seeds about 4. *Miq. Fl. Ind. Bat. I, Pt. 2, 35; Hook. fil. Fl. Br. Ind. I, 79. Uvaria tomentosa, Wall. Cat. 6454.*

Penang: Wallich, Curtis. Singapore; Wallich. Pangkore: Curtis. Penang; Seortechini, Wray, King's Collector.

At once distinguished by its large flowers, lanate leaves and sessile, or shortly stalked, rufous-tomentose fruit. •

10. *MELODORUM MAINGAYI*, Hook. fil. and Thoms. *Fl. Br. Ind. I, 80.* A climber: young branches pubescent, dark-coloured. *Leaves* coriaceous, reddish-brown when dry, broadly elliptic or oblong, rounded at both ends, the tip sometimes minutely apiculate; upper surface glabrous except the puberulous midrib; lower glaucous and finely pubescent; main nerves 14 to 16 pairs, spreading, slightly prominent and dark-coloured beneath; length 3 to 6 in., breadth 1·5 to 2·35 in.; petiole 6 in. *Flowers* 1·25 to 1·5 in. long, solitary, axillary; buds swollen at the base, narrowed and triquetrous above: pedicels 25 to 5 in., stout; bracteoles several, small. *Sepals* orbicular, sub-acute, quite connate into a disk, 35 in. in diam. *Petals* leathery; the outer oblong-lanceolate, with broad base, flat but keeled down the middle inside, outside minutely rufous-tomentose, inside hoary-pubescent; inner very small, triangular-ovate, glabrous. *Stamens* numerous, small, with a broad rounded apical process, convex. *Ovaries* about 6, sericeous on one side; stigma subsessile. *Ripe carpels* oblong, tapering to each end, the apex shortly beaked, rusty-puberulous; the pericarp thick, 1·5 to 2 in. long and 75 in. in diam.; stalks 5 in. long, stout. *Seeds* many, in horizontal rows, 5 in. long testa shining, not margined.

Penang; Maingay (Kew Distrib.,) No. 108, Curtis, No. 1046. Perak: Wray, 1112.

11. *MELODORUM PRISMATICUM*, Hook. fil. and Thoms. *Fl. Br. Ind. 121.* A large creeper; young branches glabrous, dark-coloured. *Leaves* coriaceous, oblong, elliptic-oblong, rarely obovate-oblong, abruptly and shortly acuminate; the base broad, rounded: upper surface glabrous except the minutely puberulous midrib; lower surface glaucous, reticulate, finely pubescent especially on the midrib; main nerves 12 to 18 pairs, spreading, faint especially near the tip, the secondary nerves prominent; length 4·5 to 8·5 in., breadth 2·3 to 3·3 in., petiole 5 to 7 in. *Flowers* 1·5 to 2 in. long, axillary, solitary; pedicels 3 to 6 in. long,

rufous-tomentose, with 1 large bracteole above the middle and several smaller near the base. *Sepals* quite connate into a flat, obtusely 3-angled disk, .3 in. broad, pubescent outside, glabrous and tubercled inside. *Petals* very thick: the outer linear-lanceolate, 1.5 to .2 in. long, triquetrous, rufous-tomentose outside, puberulous inside: the inner thinner and only about .3 in. long, triangular, ridged outside, much excavated and glabrous at the base inside, otherwise puberulous. *Stamens* numerous, with very short filaments, anthers linear, apex of connective obliquely triangular. *Ovaries* elongate, oblong, tapering to the apex, shortly pubescent: ovules about 14, in 2 rows; style short, lateral; stigma sub-capitate, lobulate. *Ripe carpels* ovoid, blunt, tuberculate, puberulous, becoming sub-glabrous, 1.4 in. long and .8 in. in diam.: stalks .8 to 1 in., stout. *Seeds* in 2 rows, horizontal compressed, oval, black, shining. Hook. fil. Fl. Br. Ind. I, 81; Miq. Fl. Ind. Bat. I, Pt. 2, 36. *Pyramidanthe rufa*, Miq. Ann. Mus. Lugd. Bat. II, 39. *Uvaria rufa*, Wall. Cat. 6455. *Oxymitra bassiaefolia*, Teysm. and Binnin. in Tijdsch. Ned. Ind. XXV, (1863), 419.

Penang, Malacca, Perak, Singapore: common. Distrib.: Borneo.

Authentic specimens both of *Pyramidanthe rufa* and of *Oxymitra bassiaefolia*, T. and B. shew that they unmistakably belong to this species. Specimens of the former from Bangka and from the Buitenzorg Botanic Garden have, however, their leaves rather more hairy beneath than is usual in Perak specimens and their flowers are also rather longer.

12. *MELODORUM MACRANTHUM*, Kurz in Journ. As. Soc. Bengal, 1872, Pt. II, 291; 1874, Pt. II, 56; F. Flora Burma, I, 42. A small tree: all parts except the young leaf-buds and the flower glabrous; young branches dark-coloured, rather slender. *Leaves* membranous, elliptic-oblong, sometimes slightly obovate, shortly and abruptly acuminate, the base cuneate; upper surface shining, the lower dull; main nerves 12 to 16 pairs, faint and much more prominent than the secondary, forming a double set of intra-marginal arches: length 6 to 8 in., breadth 2.5 to 3.5 in., petiole .3 to .4 in. *Flowers* solitary, axillary or from the branches below the leaves, 3 to 5 in. long, drooping; pedicels .5 to .75 in. long, obscurely bracteolate at the base only. *Sepals* broadly ovate, sub-acute, coriaceous, pubescent at the edges inside, glabrous outside, connate for half their length, .45 in. long. *Petals* greenish-white, becoming yellowish, coriaceous; narrowly linear-lanceolate, acuminate, the outer row flat, adpressed-puberulous with a glabrous patch at the base inside, 3 to 5 in. long; the inner row only 1 to 1.25 in. long, cohering by their edges, vaulted at the base and with a glabrous patch; the limb keeled inside, puberulous on both surfaces. *Stamens* numerous, the anther-cells linear, elongate; apical process of connective narrowly tri-

angular, pointed. Ovaries numerous, narrowly oblong, adpressed-rufous-pubescent, 4-ovuled: style nearly as long as the ovary, cylindric, bent outwards, glabrous; stigma small, slightly bifid. Ripe carpels oblong, blunt, tapering at the base, slightly rugose, glabrous, 1·25 to 1·5 in. long and about ·5 or ·6 in. in diam.: stalk ·4 to ·5 in. Seeds 1 or 2, compressed, ovoid, smooth. *Unona macrantha*, Kurz. in Andam. Report, Ed. I, App. B. I: *Pyramidanthe macrantha*, Kurz. l. c. Ed. 2, p. 29.

S. Andaman; Kurz, King's Collector.

In some of its characters, (e. g., the erect habit, the fewness of the ovules, and the thin texture and flatness of the much elongated outer petals) this does not quite conform to the characters of typical *Melodorum*. By its thin elongated outer petals, it approaches the *Dasy-maschalon* section of *Unona*; but the fewness of its ovules excludes it therefrom. From *Xylopia*, which it in some respects resembles, it is chiefly excluded by the very convex torus of its flowers, and by the very pointed apical appendage of its stamens. The stamens on the other hand are those of *Melodorum*, and the petals resemble those of *M. prismaticum* (*Pyramidanthe rufa*, Miq.). On the whole therefore, I think, it best to leave this plant in the genus to which Kurz finally referred it.

13. MELODORUM ELEGANS, Hook. fil. and Thoms. Fl. Ind. 122. A large climber: young branches slender, puberulous at first, ultimately glabrous, dark-coloured. Leaves thinly coriaceous, oblong-lanceolate, acuminate, slightly narrowed to the rounded base: upper surface olivaceous when dry, glabrous: lower paler, puberulous, minutely reticulate, the 12 or 13 pairs of main nerves spreading, faint: length 2·5 to 3·5 in., breadth 1 to 1·25 in., petiole ·25 to ·35 in. Flowers axillary, solitary or 2 or 3 in a fascicle, ·35 to ·65 in. long: pedicels slender, ·35 to ·6 in. long often deflexed, with 2 or 3 minute basal bracteoles. Sepals ovate, acute, united at the base only, spreading, outside tubercular and pubescent, inside glabrous and concave, ·1 in. long. Petals leathery, the outer broadly ovate, sometimes minutely ovato-oblong, silky, rufous-tomentose outside, hoary-puberulous within, with a perfectly glabrous patch at the concave base, ·35 to ·6 in long: inner petals only ·25 in. long, very thick, triquetrous and puberulous above, concave and glabrous at the base, inside. Stamens numerous, with filaments half as long as the anther-cells; apical process of connective short, thick, obliquely triangular. Ovaries narrowly oblong, glabrous, with 8 ovules in 2 rows: style short, lateral. Ripe carpels ovoid or ovoid-globose, blunt at each end, glabrous, ·35 to ·5 in. long: stalks slender, ·25 in. long, compressed, black, shining, pitted. Hook. fil. Fl. Br. Ind. I, 82: Miq. Fl. Ind. Bat. I, pt. 2, p. 36. *Uvaria elegans*, Wall. Cat. 6474A.

. This is closely allied to *M. fulgens*, H. f. and T.; but its flowers have

more slender and usually longer pedicels: the ovary of this is moreover glabrous, while that of *M. fulgens* is pubescent and the carpels of this are under half an inch in length, while those of *M. fulgens* are three times as long. This is also allied to *M. Kentii*, H. f. and Th., the ovaries of which have, however, never more than two ovules.

Penang: Wallich. Malacca: Maingay (Kew Distrib.) No. 75. Perak: King's Collector, Wray, Scortechini.

14. *MELODORUM PISCARPUM*, Hook. fil. and Thoms. Fl. Ind. 123. A powerful climber: young branches glabrous, black. *Leaves* coriaceous, elliptic or elliptic-oblong, sometimes obovate-elliptic, shortly and abruptly acuminate; the base rounded or sub-cuneate: upper surface olivaceous when dry, glabrous, shining; the lower glaucous, slightly puberulous when young: main nerves 10 to 12 pairs, spreading, very indistinct; length 2·5 to 4 in., breadth 1·25 to 1·8 in., petiole ·35 in. *Flowers* 3 to ·65 in. long, axillary, solitary or in pairs; pedicels rather stout, deflexed, rufous-puberulous, bi-bracteolate at the base, ·25 to ·35 in. long. *Sepals* broadly ovate, acute, concave, connate into a triangular cup, rufous-puberulous outside, glabrous inside, persistent. *Petals* thick: the outer flat, oblong-ovate, acute, minutely silky, rufous-tomentose outside, hoary pubescent inside except on the glabrous basal excavation, 3 to ·65 in. long: *inner petals* less than half as long, with a large glabrous basal concavity and a short, thick, triquetrous point, hoary-puberulous. *Stamens* numerous, filament very short, apical process of connective orbicular. *Ovaries* narrowly oblong, glabrous, pitted, 2-ovuled: style lateral, nearly as long as the ovary. *Ripe carpels* globular, slightly tubercled, glabrous, ·25 in. in diam.: stalks about as long. *Seeds* 2, plano-convex, dark-brown, shining, pitted. Hook. fil. Fl. Br. Ind. I, 82; Miq. Fl. Ind. Bat. I, Pt. 2, 37. *M. pyramidale*, Maingay MSS. *Uvaria mabiformis*, Griff. Notulac. IV, 709.

Malacca; Griffith. Maingay (Kew Distrib.) No. 77. Singapore; Ridley. Penang; Curtis. Perak; common. Distrib. Sumatra, Forbes, No. 2182.

Only two species of *Melodorum* besides this have glabrous ovaries (*M. Kentii* and *M. elegans*); but whereas those of this and *M. Kentii* are 2-ovuled, the ovaries of *M. elegans* have 8, or, according to Sir Joseph Hooker, sometimes 10 ovules. This species has however different leaves from the two above mentioned, and its carpels are much smaller and quite globular. As in other species of *Melodorum*, there is considerable variability in the size of the flowers in this species.

## 20. *XYLOPIA*, Linn.

Trees or shrubs. *Leaves* coriaceous. *Flowers* axillary, solitary

cymose or fascicled; buds triquetrous, conic, often slender. *Sepals* 3, valvate, connate. *Petals* 6, elongate, valvate, in 2 series; outer flat or concave; inner nearly as long, trigonous, concave at the base only. *Torus* flat, or hollow and enclosing the carpels. *Stamens* oblong, truncate or connective produced; anther-cells remote or contiguous, often septate and with a large pollen-grain in each cellule. *Ovaries* 1 or more; style long, clavate; ovules 2-6 or more, 1- to 2-seriate. *Ripe carpels* long or short, continuous or moniliform, usually several-seeded.—Distrib. Tropics generally; species 60 to 70.—Closely allied to *Melodorum*, but very different in habit.

Leaves quite glabrous.

Leaves 6 or 7 in. long ... 1° *X. oxyantha*.

Leaves between 3 and 5 in. long.

Ripe carpels cylindric, boldly tubercled *X. dicarpa*.

" " " smooth ... 3 *X. malayana*.

Leaves between 2 and 3 in. long.

Flowers always solitary; pedicels with 2 or 3 orbicular bracteoles, apical process of stamens rounded, anther-cells septate ... 4. *X. Malagayi*.

Flowers solitary or in pairs, 5 in. long: pedicels with orbicular basal bracteoles; apical process of stamens rounded; anther-cells septate... *X. pustulata*.

Flowers in fascicles or solitary, 75 in. long: pedicels ebracteolate; apical process of stamens oblong: anther-cells not septate ... 6. *X. fusca*.

Both surfaces of leaves glabrous, the midrib alone pubescent in its lower half on the upper surface; length 5.5 to 9.5 in. ... 7. *X. Curtisii*.

Leaves glabrous on the upper surface (the midrib pubescent in *X. caudata*), the lower slightly pubescent or puberulous.

Leaves more or less lanceolate, acute or acuminate, not at all obovate.

Leaves 2 or 3 in. long.

Leaves not glaucous beneath.

Flowers .5 to .57 in. long, solitary, axillary, obtuse 8. *X. elliptica*.

Flowers .2 to .25 in. long, axillary, solitary, or 2 to 3 together ... 9. *X. caudata*.



- Leaves glaucous beneath ... 10. *X. stenopetal*a.
- Leaves 3·5 to 5·5 in. long, leaves glaucous beneath; petals very long and narrow ... 10. *X. stenopetal*a.
- Leaves more or less obovate or oblanceolate, 4 to 7 in. long.
- Leaves 1·75 to 4 in. broad; flower pedicels ·2 to ·25 in. long; ripe carpels broadly ovoid, blunt, sub-glabrous ... 11. *X. Scortechinii*.
- Leaves 1·75 to 2·5 in. broad; flower pedicels ·5 to ·8 in. long; ripe carpels globular, densely and minutely yellowish-tomentose ... 12. *X. olivacea*.
- Upper surfaces of leaves glabrous (the midrib alone pubescent in some): under surfaces uniformly pubescent.
- Under-surface of leaves adpressed-rufous-soriceous; length 2 to 3 in. ... 13. *X. obtusifolia*.
- Under-surface of leaves deep brown, the pubescence slightly paler; length 3 to 4·5 in.; ripe carpels obovoid-oblong, blunt ... 14. *X. magna*.
- Under-surface of leaves purplish-brown, pubescent; length 3·5 to 5·5 in.; main nerves 10 to 12 pairs; ripe carpels much elongate, cylindric, many-seeded ... 15. *X. ferruginea*.
- Under-surface of leaves brownish-tomentose; length 6·5 to 8·5 in.; nerves 12 to 14 pairs ... 16. *X. Ridleyi*.
1. *XYLOPIA OXYANTHA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 85. A tree: young parts puberulous; the branchlets rather stout, striate. Leaves coriaceous, ovate or oblong, abruptly and shortly acuminate, glabrous, glaucous on the lower surface; main nerves 12 to 15 pairs, spreading, thin; length 6 to 7 in., breadth 2·5 to 3 in., petiole ·35 in. Peduncles axillary, in fascicles, ·35 to ·5 in. long, adpressed-pubescent. Sepals broadly ovate. Outer petals narrowly linear, tapering at the apex, yellowish pubescent, slightly keeled at the back, 1·25 to 1·5 in. long. Stamens and ovaries as in *X. ferruginea*. *Habzelia oxyantha*, Hook. fil. and Th. Fl. Ind. 124; Miq. Fl. Ind. Bat. I, pt. 2, 37. *Ucaria oxyantha*, Wall. Cat. 6478.
- Singapore: Wallich.
2. *XYLOPIA DICARPA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 85. A tree 20 to 25 feet high; branches glabrous, dark-coloured, minutely

dotted. *Leaves* coriaceous, elliptic-lanceolate, acute or acuminate, the base acute; both surfaces glabrous, minutely reticulate; main nerves about 10 pairs, spreading, very faint, the secondary nerves almost as distinct; length 3 to 4·5 in., breadth 1·5 to 1·75 in., petiole ·25 in. *Flowers* solitary or in pairs, pendent, 1·5 in. long; pedicel very short with 1 to 3 orbicular, amplexicaul, glabrous bracteoles. *Sepals* ovate, obtuse, tubercled, connate to the middle. *Petals* linear oblong, slightly expanded and concave at the base, hoary, pubescent; the inner narrower and shorter than the outer, sub-trigonal. *Stamens* numerous, the inner rudimentary: apical process rounded; anthers linear, septate. *Ovaries* 2 to 4, pilose, multi-ovular: style short. *Ripe carpels* cylindric, blunt at each end, much tubercled, puberulous, 1·5 in. long and about ·75 in. in diam. *Seeds* 7 or 8, compressed, the testa pale, scaly.

Singapore: Maingay (Kew Distribution in part) No. 84, King's Collector No. 7079.

3. *XYLOPIA MALAYANA*, Hook. fil. and Thoms. Fl. Ind. 125. A slender tree: young branches thin, glabrous, the buds pubescent. *Leaves* thinly coriaceous, shortly and bluntly acuminate, the base cuneate; both surfaces glabrous; main nerves about 8 pairs, faint, spreading; length 3·5 to 5 in., breadth 1·5 to 2 in., petiole ·2 in. *Flowers* ·6 to ·9 in. long, solitary or in pairs, axillary; pedicels rufous-pubescent, ·1 in. long, with several bracteoles at the base. *Sepals* broadly ovate, sub-acute, puberulous outside and on the edges, glabrous inside, ·15 in. long and as broad. *Petals* linear-oblong, tapering to the apex, concave and glabrous at the slightly expanded base, densely pubescent elsewhere; the inner slightly narrower and shorter than the outer and more concave at the base. *Stamens* numerous, the apices rhomboid, papillose; the anthers long, lateral, with transverse divisions. *Pistils* about 6; the ovaries oblong, densely pale-hirsute, about as long as the stamens, 2-ovuled; styles about as long as the ovaries and projecting far above the stamens, glabrous, sub-cylindric, clavate. *Ripe carpels* (side Maingay) ·35 to 1 in., several-seeded; stalk short, thick. Hook. fil. and Thoms. Fl. Br. Ind. I, 85; Miq. Fl. Ind. Bat. I, Pt. 2, 38. *Parartobotrys sumatrana*, Miq. Fl. Ind. Bat. Suppl. 374; Scheffer in Nat. Tijdsch. Ned. Ind. XXXI, 15.

Malacca; Griffith, Derry, Maingay (Kew Distrib.) No. 81. Singapore, Ridley. Perak; Scortechini. Distrib., Sumatra.

4. *XYLOPIA MAINGAYI*, Hook. fil. and Thoms. Fl. Br. Ind. I, 85. A tree? Young branches rusty-pubescent, afterwards glabrous and with white dots. *Leaves* small, coriaceous, elliptic or elliptic-oblong, subacute or obtusely acuminate, the base sub-cuneate: both surfaces glabrous and reticulate, the upper pale, the lower dark; main nerves slender; length 2

to 3 in., breadth 1 to 1.25 in.; petiole .25 to .3 in. *Flowers* solitary, pendent, pale-orange; pedicels very short, stout, curved; bracteoles 2 or 3, orbicular, rusty-tomentose. *Sepals* broadly ovate, connate to the middle, rusty-tomentose. *Petals* flat, linear-oblong, sub-acute, softly tomentose except the glabrous concave base; the inner narrower, almost as long, trigonous. *Stamens* with rounded apiculus: the anthers narrow, septate. *Ovaries* about 9, with 6 ovules; style glabrate. *Ripe carpels* unknown.

Malacca: Maingay.

5. *XYLOPIA PUSTULATA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 85. A tree: young branches pale, glabrous, minutely white-dotted. *Leaves* coriaceous, small, elliptic, sub-obtuse, the base acute, both surfaces glabrous, the lower reddish brown and reticulate: main nerves faint, not more prominent than the secondary. *Flowers* solitary or in pairs, axillary, .5 in. long, pendent; pedicels very short, with orbicular, ciliate, deciduous basal bracteoles. *Sepals* short, ovate, sub-acute, rusty-pubescent, united to the middle. *Petals* linear, sub-acute, densely adpressed-pubescent; the outer obtuse with a rather broad concave base, the inner shorter and much narrower with a broader concave base. *Stamens* linear with rounded apiculus: the anthers long, septate. *Ovaries* 5 to 8, hirsute; the style slender with clavate stigma; ovules several. *Ripe carpels* unknown.

Malacca: Maingay (Kew Distribution) No. 86.

6. *XYLOPIA FUSCA*, Maingay ex Hook. fil. Fl. Br. Ind. I, 85. A tree; young branches rather stout, glabrous, black: buds silky. *Leaves* coriaceous, oblong, obtuse, the base cuneate; upper surface glabrous shining; the lower dull, dark, reticulate; main nerves 8 or 9 pairs, very faint; length 2 to 3 in., breadth .75 to 1 in.; petiole .2 in., stout. *Flowers* .75 in. long, supra-axillary, solitary, racemed, or fascicled; peduncle .25 to .75 in. with several bracts; pedicels .25 in., puberulous, ebracteolate. *Sepals* ovate, acute, connate into a cup with 3 spreading, acute teeth, puberulous outside. *Petals* linear-oblong, tapering to the sub-acute apex: the outer adpressed golden-sericeous outside; the inner narrower and shorter, concave at the base. *Stamens* with an oblong apical process; anthers linear, lateral, not septate. *Ovaries* 4 or 5, cohering into a cone, golden-silky; ovules 10 to 16, in two rows. *Ripe carpels* unknown.

Malacca: Maingay. (Kew Distribution) No. 86.

7. *XYLOPIA CURTISII*, King, n. sp. A tree 30 feet high: young branches stout, glabrous, striate, dark-coloured. *Leaves* very coriaceous, oblong, acute or shortly acuminate; the base cuneate, slightly oblique: upper surface glabrous, shining; the lower dull, darker (when dry),

puberulous on the midrib near the base; main nerves 12 to 20 pairs, very prominent beneath and connected by straight transverse veins; length 5·5 to 9·5 in., breadth 2 to 3 in.; petiole 35 in., stout. *Flowers* 1 or 2, on stout woody extra-axillary peduncles; pedicels 2 in. long, rufous-pubescent, with a single large bracteole. *Sepals* thick, spreading, broadly ovate, sub-acute, minutely tomentose on both surfaces but especially on the outer. *Petals* thick, subequal, linear-oblong, obtuse, keeled outside; the claw orbicular, vaulted over the andro-gynœcium and glabrous inside, otherwise minutely tomentose, 75 in. long. *Stamens* numerous, the heads obliquely truncate and concealing the linear, lateral anthers. *Ovary* solitary, cylindric, fluted, glabrous, multi-ovulate. *Ripe carpel* ovoid, compressed, silvery-grey, many-seeded, 3 in. long, and 2·5 in. in diam.

Penang: Curtis, No. 1569.

8. *XYLOPIA ELLIPTICA*, Maingay ex Hook. fil. Fl. Br. Ind. I, 86. A tall tree: young branches dark-coloured, glabrous, the youngest pubescent. *Leaves* membranous, small, elliptic, obtusely acuminate, the base rounded or acute: upper surface glabrous, pale; the lower brown, minutely adpressed-pubescent; both reticulate: main nerves 6 or 7 pairs, oblique, very faint; length 1·5 to 2 in., breadth 1 to 1·25 in.; petiole 2 in., slender. *Flowers* solitary, erect, axillary, 5 to 75 in. long: peduncle about half as long, rusty-pubescent like the calyx, bracteoles minute. *Sepals* ovate, sub-acute, united to the middle. *Petals* pale brownish-tomentose; the outer linear-subulate with a broader concave base: the inner trigonous, shorter and narrower than the outer. *Stamens* numerous, minute, the apex rounded; anthers linear. *Ovaries* 1 to 3, densely hairy, 4- to 6-ovuled. *Ripe carpels* unknown.

Malacca: Maingay (Kew Distrib.,) No. 82. Perak: Wray No. 3194. Penang: Curtis, No. 2482:

9. *XYLOPIA CAUDATA*, Hook. fil. and Thoms. Fl. Ind. 125. A shrub or small tree: young branches very slender, minutely pubescent. *Leaves* thinly coriaceous, lanceolate, long and obtusely acuminate, the base cuneate; upper surface glabrous except the pubescent midrib; the lower sparsely adpressed-sericeous: main nerves about 10 pairs, spreading, faint; length 2 to 2·25 in., breadth 6 to 8 in.; petiole 1 in., slender. *Peduncles* 1 to 3, axillary, very short, minutely bracteolate at base and apex. *Flowers* 2 to 3 in. long. *Sepals* ovate, sub-acute, connate at the base, adpressed-pubescent outside, glabrous inside. *Petals* linear-oblong, obtuse, pubescent except a small glabrous concave spot at the base, the inner about as long as, but narrower than, the outer. *Anthers* rather numerous, compressed, the apical process narrow. *Ovaries* 2, elongate, sericeous, 2-ovuled: style long, pointed, glabrous, exserted.

*Ripe carpels* (fide Hooker) 2 or 3, sub-globose or ovoid, pubescent, '5 in. long, 2-seeded. Hook. fil. Fl. Br. Ind. I, 85; Miq. Fl. Ind. Bat. I, Pt. 2, 38. *Guatteria* (?) *caudata*, Wall. Cat. 6452.

Singapore: Wallich, Maingay (Kew Distrib.) No. 79. Malacca; Griffith.

10. *XYLOPIA STENOPETALA*, Oliver in Hook. Ic. Plantar. t. 1563. A tree 50 to 60 feet high: young branches dark-coloured, glabrescent, minutely lenticellate. *Leaves* thinly coriaceous, elliptic-oblong, shortly and obtusely acuminate, the base sub-cuneate; upper surface glabrous, shining; the lower glaucous or glaucescent, sparsely adpressed-pubescent; both reticulate; main nerves 10 or 12 pairs, spreading, inter-arching close to the edge, faint: length 2'5 to 4'5 in., breadth 1'1 to 1'6 in., petiole '25 in. *Flowers* axillary, solitary or in fascicles of 2 to 5; pedicels slender, often decurved, puberulous, with one minute bracteole, '5 to '75 in. long. *Sepals* united to form a small puberulous cup with acute, spreading teeth. *Petals* fleshy, very narrow, slightly expanded and concave at the base, minutely tawny-pubescent, the inner slightly shorter and narrower. *Stamens* linear, the connective prolonged into a cylindro-conic apical appendage; the anthers fusiform, lateral. *Ovaries* numerous, elongate, pubescent, 6-ovuled; style filiform: stigma sub-clavate. *Ripe carpels* oblong, sub-terete, narrowed to the stalk, 2 to 2'5 in. long and '5 in. diam.: pericarp fleshy. *Seeds* 1 to 4: stalks thick, '3 in. long.

Ponang; on Government Hill at 600 feet: Curtis Nos. 857 and 880.

11. *XYLOPIA SCORTECHINII*, King n. sp. A tree 50 to 60 feet high: young branches rusty-tomentose, ultimately glabrous, much striate and pale brown. *Leaves* coriaceous, obovate-elliptic to elliptic-oblong, very shortly and abruptly acuminate, slightly narrowed to the sub-cuneate rounded slightly oblique base: upper surface glabrous, the midrib slightly rufous-puberulous near the base: lower surface pale, sparsely rufous-pubescent especially on the midrib and 10 to 14 pairs of oblique, rather straight, prominently raised main nerves; length 4 to 7 in., breadth 1'75 to 4 in.; petiole '35 in., pubescent. *Flowers* rarely solitary, usually in fascicles of 2 to 5 on tubercles in the axils of leaves or of fallen leaves; pedicels short, ('2 to '25 in.), stout, rusty-tomentose with a sub-mesial bracteole. *Sepals* quite free, broadly ovate, blunt, pubescent outside, glabrous inside. *Petal*, thickened, linear-obtuse with an orbicular concave claw, vaulted over the stamens and pistils, 1'25 to 1'75 in. long, pubescent everywhere except on the glabrous concavity of the claw. *Stamens* numerous, with truncate 4- or 5-angled apices concealing the lateral anthers. *Ovaries* few, short, oblong, pubescent, 4- or 5-ovuled; stigma large, oblong. *Ripe carpels* broadly ovoid, blunt, rufous-pubes-

cent when young, glabrescent when old, '8 in. long and '6 in. in diam. *Seeds* about 4, discoid, pale brown, shining. *Drepananthus stenopetala*, Scortechini, MSS.

Perak: Scortechini, No. 1781; King's Collector, No. 8241.

A species allied to *X. olivacea*, King; but with broader leaves, shorter flower pedicels, narrower petals and ovoid sub-glabrous fruit.

12. *XYLOPIA OLIVACEA*, King n. sp. A shrub or small tree: young branches pubescent, ultimately brown, striate and glabrous. *Leaves* thinly coriaceous, elliptic-oblong, sometimes slightly obovate, shortly and abruptly acuminate, the base cuneate; both surfaces dull olivaceous when dry; the upper glabrous, the lower paler, slightly scurfy; main nerves 6 to 8 pairs, oblique, curving, inter-arching boldly '15 in. from the margin, prominent beneath; length 3·5 to 7 in., breadth 1·75 to 2·5 in., petiole '25 in., swollen, puberulous, black when dry. *Flowers* solitary or in pairs, supra-axillary; pedicels rather stout, '5 to '8 in. long, cinereous-tomentose with an ovate-lanceolate, mesial bracteole. *Sepals* thick, especially at the base, ovate, acute, connate below the middle, pale cinereous-puberulous on both surfaces. *Petals* sub-equal, fleshy, narrowly linear with a tapering limb and slightly expanded concave vaulted claw, densely and minutely cinereous-tomentose, 1 to 1·5 in. long, the inner shorter. *Stamens* short, cuneate, the broad oblique heads covering the apices of the linear anthers. *Ovaries* few, oblong, densely sericeous, 6- to 8-ovuled; style short, cylindric: stigma large, fleshy. *Ripe carpels* few, globular, with slightly flattened minutely apiculate apex, and an imperfect lateral ridge, densely and minutely yellowish-tomentose, '6 in. in diam., stalks very short. *Seeds* 4 or 5, discoid, smooth, pale brown, shining, separated from each other by imperfect dissepiments.

Perak: up to elevations of 3,000 or 4,000 feet, common. Scortechini, Wray, King's Collector.

13. *XYLOPIA OBTUSIFOLIA*, Hook. fil. and Thoms. Fl. Br. Ind. I, 85. A tree: young branches glabrous, dark-coloured, striate: buds silky. *Leaves* coriaceous, oblong, obtuse or retuse, the base cuneate, upper surface glabrous, shining; the lower adpressed rufous-sericeous: main nerves 8 or 10 pairs, oblique, very faint; length 2 to 3 in., breadth 1 to 1·5 in., petiole '25 in. *Flowers* '5 in. long, axillary, solitary or 2 or 3 in small sub-racemose cymes; pedicels '2 to '25 in., rufous-pubescent with a single bracteole. *Sepals* thick, broadly ovate, acute, united to the middle, pubescent outside, glabrous inside. *Petals* linear-oblong, tapering towards the blunt apex; the outer petals adpressed-rufous-pubescent outside, puberulous within, slightly concave and glabrous at the base; the inner smaller, more concave at the glabrous base, puberu-

lous elsewhere. *Stamens* numerous, elongate, narrow, with an acute apiculus; the anther-cells linear, lateral. *Pistils* one or two, conical, adpressed-pubescent; the style short, thin. *Ripe carpels* oblong, cylindrical, sub-oblique, blunt, 1.25 in. long .7 in. in diam. *Seeds* 3 or 4, globular.

Malacca: Griffith. Perak: King's Collector, No. 2816.

14. *XYLOPIA MAGNA*, Maingay ex Hook. fl. Fl. Br. Ind. I, 84. A tree: young branches tomentose, becoming glabrous and darkly cinereous. *Leaves* coriaceous, ovate-lanceolate to elliptic, sub-acute, the base rounded, the edges slightly revolute when dry; upper surface shining, reticulate, glabrous except the pubescent midrib; under surface deep brown, with rather pale pubescence; main nerves about 10 pairs, spreading, inter-arching some way from the edge, faint: length 3 to 4.5 in., breadth 1.25 to 2 in.; petiole .25 in., pubescent. *Flowers* 2 to 2.5 in. long, solitary or in pairs, axillary: pedicels stout, tomentose, with a single large, ovate, acute, often bifid bract. *Sepals* thick, ovate acute, connate into a 3-toothed cup, adpressed-pubescent outside, glabrous inside. *Petals* sub-equal, the inner narrower and shorter, narrowly linear, slightly expanded and concave at the base, tapering towards the apex, pubescent except in the basal concavity. *Stamens* numerous, elongate, with an oblong obtuse apical process; the anthers lateral, linear, septate. *Pistils* about 15, narrowly oblique, hirsute on the outer side, 4-ovuled. *Style* filiform, long. *Ripe carpels* obovoid-oblong, compressed, blunt, minutely tomentose, 1.4 in. long and .65 in. diam.; stalks thick, only .15 in. long. *Seeds* about 4, in two rows, arillate, the testa bony.

Malacca: Maingay (Kew Distrib.) No. 83. Singapore; Ridley. Perak; Scortechini.

15. *XYLOPIA FERRUGINEA*, Hook. fl. and Thoms. Fl. Br. Ind. I, 85. A tree 20 to 60 feet high; young branches brownish-pubescent. *Leaves* coriaceous, narrowly oblong, acute; the base slightly narrowed and oblique, rounded or minutely sub-cordate; upper surface glabrous, shining; the lower glaucous and softly purplish-brown pubescent: most densely so on the midrib; main nerves 10 to 12 pairs, oblique, inter-arching near the edge, prominent beneath; length 3.5 to 5.5 in., breadth 1.1 to 2 in.; petiole .2 in., channelled. *Flowers* solitary or in pairs, axillary or extra-axillary, erect or pendulous, yellow; pedicels .5 to .75 in., rusty-pubescent; bracteoles 1 to 3, small, lanceolate. *Sepals* broadly ovate-acuminate, connate at the base, spreading, small, pubescent outside, glabrous within. *Petals* linear, fleshy, tapering at the very apex, very long; the outer rufous-pubescent outside, cinereous-puberulous inside, concave at the very base, 1.25 to 2 in. long; inner petals much

narrower and thinner and a little shorter than the outer, cinereous-puberulous. *Stamens* about 24, narrow: anthers linear, lateral, the connective ending in a broadly oblong apical process. *Ovaries* numerous, narrowly oblong, pointed, densely rusty-hirsute, multi-ovular: style short, filiform, glabrous; stigma minute. *Ripe carpels* numerous, much elongate, cylindric, glabrescent, with transverse partitions between the seeds, many-seeded, sub-moniliform when dry, 2 to 5 in. long. *Seeds* oblong, rugose, minutely pellucid-dotted, 3 in. long. *Habzelia ferruginea*, H. f. and T. Fl. Ind. 123. Miq. Fl. Ind. Bat. 1, Pt. 2, 37. *Artabotrys malayana*, Griff. Notul. IV, 713.

Malacca: Griffith. Maingay (Kew Distrib.) No. 85. Perak: Scortechini, King's Collector, Wray: common. Selangor: Curtis.

16. *XYLOPIA RIDLEYI*, King n. sp. A tree? Young branches stout, densely rusty-tomentose. *Leaves* coriaceous, obovate-elliptic, abruptly and very shortly acuminate, narrowed from below the middle to the slightly cuneate base: upper surface glabrous except the rufous-puberulous midrib: lower softly rusty-tomentose with longer, superficial, paler hairs: main nerves 12 to 14 pairs, oblique, inter-arching boldly within the margin, prominent on the lower, depressed on the upper surface; length 6.5 to 8.5 in., breadth 2.75 to 3.5 in.; petiole .5 to .6 in. stout, tomentose. *Flowers* in extra-axillary (often leaf-opposed) fascicles of 3 to 5: pedicels stout, rufous-tomentose, with a single bracteole, .25 to .3 in. long. *Sepals* broadly ovate, long-acuminate, rufous-pubescent outside, glabrous within, .35 in. long. *Petals* filiform, triquetrous, with expanded concave vaulted bases concealing the andro-gynæcium, and glabrous inside, otherwise pubescent, 2.5 to 3.5 in. long. *Stamens* numerous, with truncate 4- or 5-angled heads concealing the elongate, lateral anthers. *Ovaries* obliquely ovoid, densely sericeous, 4- to 6-ovuled: stigmas fleshy, agglutinated. *Ripe carpels* unknown.

Singapore: Ridley.

## 21. *PHÆANTHUS*, H. f. and T.

Trees or climbers. *Flowers* solitary, terminal or in extra-axillary fascicles. *Sepals* 3, small, valvate. *Petals* 6, valvate in 2 rows; outer small like the sepals; inner large, flat, coriaceous. *Stamens* numerous, oblong or quadrate, truncate; anther-cells dorsal, distant. *Carpels* numerous; style cylindric or clavate, sometimes grooved ventrally. *Ovules* 1-2, sub-basal, ascending. *Ripe carpels* staked, 1-seeded.—DISTRIB. Species about 6; one in Southern Peninsular India, the rest Malayan.

Leaves softly pubescent ... .. 1. *P. nutans*.

Leaves glabrous.

• Ovules and seeds solitary ... .. 2. *P. lucidus*.

Ovules and seeds in pairs ... .. 3. *P. andamanicus*.



1. *PHÆANTHUS NUTANS*, H. f. and Th. Fl. Ind. 147. A small tree : young branches rusty tomentose. *Leaves* membranous, oblong-lanceolate or oblanceolate to obovate-elliptic, caudate-acuminate, the base always narrowed and sometimes acute ; upper surface glabrous, the midrib and main nerves tomentose ; lower softly pubescent, the midrib tomentose : main nerves 10 to 14 pairs, spreading, prominent beneath, inter-arching near the edge : length 5 to 9 in., breadth 1·3 to 4·5 in. ; petiole ·3 in., tomentose. *Flowers* fœtid, solitary or 2 or 3 together, drooping, extra-axillary ; pedicels ·5 to 1·5 in. long with 1 or 2 linear bracteoles, pubescent. *Sepals* linear-lanceolate, spreading, tomentose, ·2 in. long. *Petals* very unequal ; the outer small like the sepals ; inner ovate-oblong, acute, yellow, pubescent, 5- to 7-ribbed, ·75 to 1 in. long. *Ripe carpels* ovoid, pubescent, beaked, ·6 in. long and ·35 in. in diam. ; stalk nearly as long. Hook. fil. Fl. Br. Ind. I, 72 ; Miq. Fl. Ind. Bat I, pt. 2, 51. *Uvaria nutans*, Wall. Cat. 6481. *U. tripetala*, Roxb. Fl. Ind. ii, 667. *U. ophthalmica*, Roxb. ex Don Gen. Syst. i, 93.

Singapore ; Wallich and others. Penang ; Curtis. Malacca ; Main-  
gay, (Kew Distrib.) No. 67. Perak ; at low elevations. Sugei Ujong ;  
Ridley. Distrib. Moluccas, Sumatra.

2. *PHÆANTHUS LUCIDUS*, Oliver in Hook. Ic. Pl. t. 1561. A tree 40 to 50 feet high : young branches minutely rusty pubescent or almost glabrous, dark-coloured and furrowed. *Leaves* thickly membranous, oblong-elliptic to lanceolate, acuminate, the base cuneate ; both surfaces shining, glabrous except occasionally the puberulous midrib ; main nerves about 8 pairs, oblique, rather prominent beneath : length 4·5 to 6·5 in., breadth 1·25 to 2·25 in. ; petiole ·2 in. *Flowers* solitary, rarely in fascicles of 2 or 3, extra-axillary, erect, ·6 in. to 1 in. in diam., buds triquetrous ; peduncles 1 to 1·25 in. long, slender, puberulous, with 2 minute bracteoles. *Sepals* ovate, acute, less than ·1 in. long. *Outer petals* like the sepals but a little longer : inner petals thick, greenish-yellow, oblong-ovate, acute, about ·5 in. long, glabrescent with puberulous edges. *Anththers* with square truncate heads. *Ovaries* numerous, 1-ovulate. *Ripe carpels* oblong, ·6 in. long and ·3 in. in diam., minutely granular ; sub-glabrous as are the ·5 to ·6 in. long stalks.

Penang : Curtis. Perak : at low elevations : King's Collector, Nos. 7275 and 10044.

3. *PHÆANTHUS ANDAMANICUS*, King n. sp. A small glabrous shrub : young branches pale brown, slender. *Leaves* membranous, elliptic or elliptic-lanceolate, acute, slightly narrowed to the rounded base, both surfaces rather pale when dry ; main nerves 15 to 20 pairs, faint, slender, horizontal, forming double loops near the margin, the reticulations faint ; length 4 to 7·5 in., breadth 1·75 to 2·5 in., petiole ·35 in. *Flowers*

·5 to ·75 in. in diam., campanulate, solitary, rarely in pairs, extra-axillary: pedicels ·2 in. long, bracteolate at the base. *Sepals* very small; semi-orbicular. *Outer petals* slightly larger than the sepals and about ·1 in. long; *inner petals* united at the base, oblong-ovate, sub-acute, ·5 to ·7 in. long, 4 or 5 nerved. *Anthers* numerous, flattened from front to back, about as broad as long with truncate not apiculate heads. *Ovaries* numerous, elongate, narrow, 2-ovuled: stigmas elongate. *Ripe carpels* sub-globular, ·5 in. in diam.: stalks ·5 to ·7 in. *Seeds* two, plano-convex, pale.

South Andaman, King's Collector.

This is a very distinct species recognisable at once by the unusual character of having its petals united at the base and by its 2-seeded carpels.

## 22. *MILACSA*, Leschenault.

Trees or shrubs. *Flowers* usually bi-sexual (dioecious or polygamous in No. 1), green or red, axillary or extra-axillary, solitary, fascicled or cymose. *Sepals* 3, small, valvate. *Petals* 6, valvate in 2 series; outer smaller, like the sepals; inner cohering when young by the margins, at length free. *Torus* elongated, cylindric. *Stamens* definite or indefinite; anthers subdidymous; cells contigulous, ovoid, extrorse; connective more or less apiculate. *Ovaries* indefinite, linear-oblong; style oblong or very short; ovules 1-2, rarely 3-4. *Ripe carpels* globose or oblong, 1- or 2- or many-seeded.—Distrib. Species 8; all Indian.

Flowers dioecious or polygamous	...	1. <i>M. Roxburghiana</i> .
Flowers hermaphrodite	...	2. <i>M. longipes</i> .

1. *MILACSA ROXBURGHIANA*, Hook. fil. and Thoms. Fl. Ind. 150. A small tree; young branches softly pubescent, ultimately glabrous, striate and pale. *Leaves* thinly coriaceous, oblong or oblong-lanceolate, shortly acuminate, the base rounded; upper surface glabrous, the lower sparsely adpressed, pubescent to tomentose; main nerves about 10 pairs, spreading, inter-arching ·15 in. from the base; length 2·5 to 4 in., breadth ·85 to 1·4 in.; petiole ·05 in., pubescent. *Pedicels* 1 to 2 together, axillary, slender, ·5 to 1·5 in. long, sometimes on a short peduncle; bracteoles several, linear. *Flowers* dioecious or polygamous, about 5 in. long. *Sepals* and outer petals subequal, lanceolate or linear, rusty-tomentose. *Inner petals* ·5 to ·6 in. long, ovate or oblong-lanceolate, sub-acute, nerved, red. *Stamens* in male flower numerous, with obliquely truncate, broad apices. *Ovaries* (in female flower) oblong, glabrous; style oblong, ovules 1 or 2. *Ripe carpels* ovoid or oblong, blunt, glabrous, granulate, ·25 to ·35 in. in diam.; stalk ·4 in. long, slender. *Seeds* 1, rarely 2. Hook. fil. Fl. Br. Ind. I, 87; Kurz F. Flora Burma, I, 47. *M. Wallich-*

*iana*, H. f. and T. l. c. 149. *M. tristis*, Kurz F. Flora Burma, I, 47; *Uraria dioica*, Roxb. Fl. Ind. ii. 659. *Phæanthus dioicus*, Kurz in Flora LIII. (1870) 274. *Guatteria globosa*, A. DC. Mem. Soc. Genev. V, 43; Wall. Cat. 6448. *Hyalostemma Roxburghiana*, Wall. Cat. 6434; Griff. Ic. Pl. Ind. Or. iv. t. 653.

Sikkim, Himalaya; Assam Hill ranges; Chittagong Hills: Burma; Singapore up to 4,000 feet.

Kurz's species *M. tristis*, (F. Flora Burma, I, 47) appears to be a form of this with larger leaves and flowers than usual. The only specimens of it extant are very poor and better material may shew it to be, as Kurz thought, a distinct species. According to M. Pierre, his Cambodian species *M. mollis* (Fl. Forest. Coch.-Chine, t. 40) is closely allied to *M. Roxburghiana*. The same author's species *M. campanulata* (l. c. t. 41) is also allied to *M. Roxburghiana* and to *M. macrocarpa*.

2. *MILICIA LONGIPES*, King, n. sp. A small tree 15 to 30 feet high: young branches dark-coloured; all parts glabrous except the edges of the sepals and outer petals. *Leaves* membranous, shining, oblong-ob-lanceolate, acuminate, the base sub-cuneate or rounded; main nerves about 12 pairs, spreading, faint: length 5·5 to 7 in., breadth 1·75 to 2·75 in., petiole 1 to 1·5 in. *Flowers* 5 to 6·5 in. long, axillary, solitary; pedicels slender, 5 to 7·5 in. long, (larger in fruit) with 3 or 4 lanceolate bracteoles at the base. *Sepals* and *outer petals* sub-equal, minute, ovate, sub-acute, the edges ciliate. *Inner petals* very much larger than the outer, ovate-oblong, veined, sub-acute, greenish-yellow, 5 or 6 in. long. *Stamens* about 18, compressed, short, often bent, the apiculus broad, shallow. *Ovaries* numerous, elongate, glabrous; *stigma* large, capitate, sessile. *Ripe carpels* numerous, globular-ovoid, blunt, glabrous, sub-granular, 25 to 3 in. long; stalks 75 to 1 in., slender. *Seeds* ovoid.

Perak: at low elevations, Scortechini, King's Collector.

This species approaches *M. macropoda*, Miq: but its leaves are more narrowed to the base and more acuminate.

### 23. *ALPHONSEA*, H. f. & T.

Troty trees. *Leaves* more or less coriaceous, glabrous, shining. *Flowers* small or middle-sized, in leaf-opposed, rarely extra-axillary, peduncled fascicles; buds conical. *Sepals* 3, small, valvate. *Petals* 6, valvate in 2 series, often saccate at the base, larger than the sepals, equal or the inner rather smaller. *Torus* cylindric or hemispheric. *Stamens* indefinite, loosely packed; anther-cells dorsal, contiguous; connective apiculate. *Ovaries* 1 or more; style oblong or depressed; ovules 4-8, in 2 series on the ventral suture. *Carpels* sub-sessile or stalked.—Distrib. Species 9, all Indian or Malayan.—Baillon Hist. 215 unites this genus with *Bocayea*.

Leaves rusty-pubescent beneath at all stages ... 1. *A. Maingayi*.

Leaves glabrous on both surfaces (puberulous on the lower in *A. elliptica*).

Leaves more than 3 inches long.

Buds conical; ripe carpels ovoid or globose.

Leaves glabrous on the upper surface, puberulous on the lower when young, elliptic or ovate-elliptic; main nerves 6 to 8 pairs ... 2. *A. elliptica*.

Leaves quite glabrous, broadly elliptic, shortly acuminate: main nerves 7 to 8 pairs ... 3. *A. lucida*.

Buds globose; ripe carpels cylindric ... 4. *A. sub-indehiscens*.

Leaves 3 inches long or less: ripe carpels cylindric ... 5. *A. cylindrica*.

Of uncertain position (fruit unknown) ... 6. *A. Curtisii*.

1. ALPHONSEA MAINGAYI, Hook. fil. and Thoms. Fl. Br. Ind. I, 90.

A tree: branches rusty-tomentose, ultimately dark-coloured and glabrous. *Leaves* coriaceous, elliptic-oblong or oblong-lanceolate, shortly, and often obtusely, acuminate, the base rounded; upper surface shining, glabrous except the midrib, puberulous near the base; lower surface rusty, conspicuously reticulate, pubescent, the midrib tomentose; main nerves 8 or 9 pairs, oblique, inter-arching far from the edge; length 5 to 7 in., breadth 1·5 to 2·7 in., petiole ·25 in. *Flowers* ·75 in. in diam., supra-axillary, solitary or in small racemes; pedicels ·1 in. long, rusty-tomentose, bracteole small. *Sepals* sub-orbicular, very small. *Petals* ovate, pubescent outside, glabrous within, the outer recurved, the inner smaller. *Stamens* with broad short filaments; the anther-cells small, diverging below. *Ovules* about 20. *Ripe carpels* ovoid, short-stalked, 2 in. long, by 1 in. in diam. *Seeds* many, smooth.

Malacca, Maingay (Kew Distrib.) No. 98.

2. ALPHONSEA ELLIPTICA, Hook. fil. and Thoms. Fl. Br. Ind. I, 90.

A tree? Young branches rather stout, grey, glabrous. *Leaves* coriaceous, elliptic or ovate-elliptic, shortly and bluntly acuminate or acute, the base abruptly cuneate; upper surface glabrous, shining; the lower reticulate, puberulous when young, glabrous when adult, slightly paler than the upper; main nerves 6 to 8 pairs, spreading, slightly prominent beneath; length 3·5 to 5 in., breadth 1·25 to 1·75 in., petiole ·2 in. *Flowers* ·8 in. in diam., axillary, solitary or 2 to 3, in short racemes; peduncles very short, multi-bracteate, pedicels ·25 to ·35 in. long, with 1 or 2 minute bracteoles. *Sepals* sub-orbicular, obtuse, recurved, con-

nate at the base. *Petals* adpressed-pubescent; the outer ovate-lanceolate, reflexed: the inner rather smaller. *Stamens* in several rows, apiculate. *Ovaries* linear-oblong, pubescent; stigma sub-sessile, sub-capitate. *Ovules* numerous, in two series. *Ripe carpels* unknown.

Malacca; Maingay (Kew Distrib.) No. 99.

3. *ALPHONSEA LUCIDA*, King, n. sp. A shrub 6 to 8 feet high: all parts glabrous except the flower; young branches slender, rather dark-coloured. *Leaves* thinly coriaceous, broadly elliptic, shortly, abruptly and rather obtusely acuminate, the base cuneate; under surface very minutely scaly; main nerves 7 or 8 pairs, oblique, curving, depressed on the upper, bold and prominent on the lower, surface; length 4.5 to 5.5 in., breadth 1.75 to 2.5 in.; petiole .3 in., stout. *Flowers* extra-axillary, solitary or 2 or 3 in racemes: peduncle of raceme short, pedicels shorter than the peduncle, puberulous, bracteolate, .3 to .4 in. long. *Sepals*, triangular-ovate, connate at the base, reflexed, puberulous outside, glabrous inside. *Petals* yellowish-white, subequal, oblong, oblique, tapering gradually to the sub-acute apex, the base broad, suddenly narrowed and slightly pouched, puberulous, .5 in. long, the inner slightly smaller. *Stamens* in 3 rows; filament very short, connective with a short apiculus. *Ovaries* 4 or 5, oblong, adpressed-pubescent; ovules many, in two rows: stigma sessile, sub-capitate. *Ripe carpels* unknown.

Perak: elevat. 500 feet. King's Collector, No. 5387.

4. *ALPHONSEA SUB-DEHISCENS*, King, n. sp. A shrub or small tree: young branches rather slender, puberulous at first but speedily becoming glabrous. *Leaves* thinly coriaceous, oblong-lanceolate to elliptic, shortly and rather bluntly acuminate, the base rounded or sub-cuneate; upper surface glabrous except the puberulous midrib, the lower reticulate, sparsely puberulous or glabrous; main nerves about 10 pairs, spreading, very faint; length 4 to 6 in., breadth 1.75 to 2.3 in.; petiole .25 in. *Flowers* globular, scarcely opening, .25 in. in diam., solitary or in pairs, slightly supra-axillary, on short pedicels, with several large sub-orbicular pubescent bracteoles. *Sepals* thick, fleshy, connate into a flat cup, .3 in. in diam., with three broad obtuse, spreading lobes. *Petals* larger than the sepals, thick, hard and fleshy, valvate, orbicular, acute, concave, outside tawny-pubescent, inside glabrous except near the apex; the outer .2 in. in diam., the inner row rather smaller than the outer. *Stamens* numerous; the apical process large, fleshy, conical, concealing the apices of the narrow, linear anther cells: torus conical. *Pistil* solitary, clavate, minutely puberulous, many-ovuled: stigma minute. *Ripe carpels* elongate-clavate, puberulous, 1 to 1.25 in. long, tapering into a stalk, .25 to .3 in. long. *Seeds* about 10.

Perak: King's Collector.

The dried fruits of this species sometimes open longitudinally by a sort of quasi-suture—hence the specific name.

5. *ALPHONSEA CYLINDRICA*, King, n. sp. A small tree 20 to 30 feet high; young branches with long, soft, pale brown pubescence, ultimately glabrous, cinereous, striate. *Leaves* thinly coriaceous, ovate-lanceolate, sometimes oblanceolate, shortly and bluntly acuminate; the base rounded or sub-cuneate, slightly oblique; upper surface glabrous, shining; the midrib pubescent, the lower dull sparsely pubescent on the midrib and nerves; main nerves 7 to 9 pairs, spreading, faint; length 2·5 to 3·5 in., breadth 1·1 in. to 1·5 in., petiole ·15 in. *Flowers* ·35 in. long, single or 2 or 3 from leaf-opposed or extra-axillary peduncles; peduncles ·15 to ·4 in. long, with deciduous, distichous, sub-orbicular bracts: pedicels 2 to ·35 in. long, pubescent, with 1 bracteole near the base. *Sepals* semi-orbicular, blunt, connate at the base, tomentose outside, glabrous within, reflexed. *Petals* subequal, oblong-ovoid, tapering from the sub-saccate base to the sub-acute apex, tomentose outside, pubescent minutely inside except a glabrous patch at the base, 4 in. long. *Stamens* in 3 rows with short, broad filaments: anthers ovate, the connective very slightly apiculate. *Ovaries* 3, oblong, densely pale yellowish sericeous, with many ovules in two rows: style short, stigma bilid, sub-capitate. *Ripe carpels* 1 or 2, elongate, terete, tapering to the apex, pubescent or puberulous, nearly 1 in. long and only ·2 in. in diam.

Perak: on Ulu Bubong, elevat. 400 to 600 feet. King's Collector, No. 10633.

A species resembling *A. sub-dehiscens* in its narrow cylindric fruit.

6. *ALPHONSEA CURTISII*, King, n. sp. A scandent shrub: young branches yellowish-pubescent, speedily becoming glabrous and dark-coloured. *Leaves* coriaceous, oblong-lanceolate, acute at base and apex; upper surface glabrous shining, the lower minutely, sparsely adpressed-puberulous or glabrous, darker than the upper when dry, minutely reticulate; main nerves about 12 to 15 pairs, sub-horizontal, very faint, inter-arching far from the edge; length 4 to 5·5 in., breadth 1·2 to 1·75 in., petiole ·2 in. *Peduncles* extra-axillary, 1- or 2-flowered; flowers about ·5 in. long, conical in bud: pedicels about ·3 in. long, tawny-tomentose; bracteoles 1 or 2, sub-orbicular. *Sepals* connate into a spreading cup, ·25 in. broad, tomentose outside and glabrous inside, with 3 broad, sub-acute teeth. *Petals* much larger than the sepals, fleshy, oblong, ovate, sub-acute; the outer tomentose on both surfaces, ·4 in. long; the inner narrower, glabrous inside. *Stamens* numerous, with short thick filaments: apical process of connective small, not concealing the short perfectly dorsal anther-cells. *Pistils* about 3, oblong, tomentose, many-ovuled: stigma large, broad, sessile. *Ripe carpels* unknown.

Penang: Curtis, No. 1410.

## 25. KINGSTONIA, H. f. and T.

Trees. *Flowers* fascicled on cauline tubercles, bisexual. *Sepals* 3, persistent, ovate, acute, the bases connate. *Petals* 6; outer valvate; inner smaller, oblong, imbricate. *Stamens* about 12, the filament half the length of the extrorse anther-cells; connective obliquely truncate. *Ovary* 1; stigma sessile, peltate, crenate: ovules few. *Ripe carpels* globose. *Seeds* several, 2-seriate.

1. KINGSTONIA NERVOSA, Hook. fil. and Thoms. Fl. Br. Ind. I, 93. Young branches rusty-pubescent. *Leaves* thinly coriaceous, oblong, rarely elliptic, shortly acuminate, the base rounded; both surfaces glabrous, the nerves and midrib puberulous beneath when young; main nerves 12 to 14 pairs, oblique, rather straight, depressed on the upper, strong and prominent on the lower, surface; length 4 to 8 in., breadth 1.5 to 3.25 in.; petiole .4 in., puberulous. *Flowers* .25 in. long, in extra-axillary fascicles of 8 or 10: pedicels .35 to .5 in., slender, rusty-pubescent; bracteoles orbicular, one close to the flower, the others basal and imbricate. *Sepals* ovate, connate at the base, spreading, pubescent outside, glabrous within. *Outer petals* oblong-elliptic, concave, obtuse, cinereous-tomentose outside, pubescent inside; *inner petals* smaller, thick, concave and very tomentose, in the upper half. *Stamens* about 15, the connective with a broad truncate apex. *Ovary* one, oblong, angled, pubescent; ovules 4 to 6. *Ripe carpels* broadly ovoid, blunt, minutely velvety pale-rusty tomentose, 1.5 in. long and 1.1 in. in diam.; pericarp woody. *Seeds* about 4, oblong, compressed, separated by dissepiments.

The species above described has only a single pistil. But there are, in the Calcutta Herbarium, specimens from Sumatra (Forbes No. 2713, in fruit but without flower) of what appears to be a second *Kingstonia*, and in these there are two carpels. If this plant proves to be a *Kingstonia*, the diagnosis of the genus will have to be amended.

Malacca: Maingay, (Kew Distrib.) No. 22. Perak: Wray, No. 3376.

## 26. MEZZETTIA, Beccari.

Trees. *Flowers* small, greenish, axillary or from the axils of fallen leaves, fasciculate or umbellate. *Sepals* 3, ovate, valvate. *Petals* 6, valvate, opening late and accrescent, flat, linear, the inner petals smaller than the outer. *Stamens* 9 to 12, in two rows; anther-cells lateral, introrse; connectives produced beyond their apices, truncate. *Torus* small, slightly concave, pubescent. *Ovary* solitary, ovate, glabrous, contracted into a very short style; stigma sub-capitate; ovules 2, superposed. *Carpel* coriaceous, elliptic or globose. *Seeds* 2, large, compressed. Five species, all Malayan.

1. *MEZZETTIA LEPTOPODA*, Oliver in Hook. Ic. Pl. t. 1560. A tree: young branches dark-coloured, glabrous, striate, rather stout. *Leaves* coriaceous, oblong or narrowly elliptic, obtusely acuminate or acute; the base rounded or acute; upper surface glabrous, shining; the lower dull, obscurely reticulate; main nerves 8 or 9 pairs, forming wide arches far from the margin, very faint; length 2·5 to 4 in., breadth 1 to 1·75 in., petiole ·35 in. *Flowers* ·5 in. long, on long slender pedicels in axillary fascicles of 2 to 6; pedicels ·5 to ·75 in., pubescent; bracteoles minute. *Sepals* broadly ovate, connate at the base, tomentose, reflexed. *Petals* tomentose, on both surfaces; the outer linear, obtuse, 2 in. long; the inner shorter and broader. *Ovary* ovoid. *Ripe carpels* unknown, *Lonchomeria leptopoda*, H. f. and Th. Fl. Br. Ind. I, 9f.

Malacca: Maingay (Kew Distrib.) No. 102.

This plant is very imperfectly known. The carpels associated with Maingay's specimens do not agree with his description of them (Fl. Br. Ind. I, 94) and they are evidently those of some species of *Polyalthia*.

2. *MEZZETTIA HERVEYANA*, Oliver Hook. Ic. Plant. t. 1560. A tree; young branches rather stout, nodose, glabrous. *Leaves* coriaceous, elliptic-oblong, shortly acuminate, the base cuneate, both surfaces glabrous, the upper shining; main nerves about 10 pairs, spreading, inter-arching within the margin, faint; length 2·5 to 3 in., breadth 1 to 1·25 in., petiole ·25 to ·35 in. *Flowers* ·4 in. long, rather crowded, in sessile axillary or extra-axillary fascicles of 3 to 8; pedicels ·3 in. long, puberulous, ebracteolate. *Sepals* broadly ovate, obtuse, connate at the base, pubescent like the petals. *Outer petals* ovate-lanceolate, obtuse, flat, the inner smaller, broadly elliptic, obtuse, the tips incurved. *Anthers* sessile, obovate-quadrate, about 12. *Ovary* oblong, tapering into the style: ovules 2, superposed. *Ripe carpels* unknown.

Malacca: Hervey.

3. *MEZZETTIA CURTISII*, King n. sp. A tree, 30 to 40 feet high: young branches cinereous, rugose. *Leaves* thinly coriaceous, oblong-lanceolate or oblong, more or less acuminate, the base acute; both surfaces glabrous; the upper shining, the lower dull; main nerves about 10 pairs, spreading, faint; length 2·5 to 5 in., breadth ·5 to 1·5 in., petiole ·25 in. *Flowers* ·25 in. long, in crowded, sessile, axillary or extra-axillary fascicles of 5 to 10; pedicels slender, ebracteolate, scurfily pubescent, ·35 to ·6 in. long. *Sepals* semi-orbicular, with reflexed tips, connate and forming a spreading, shallow cup, densely and minutely tomentose. *Outer petals* ligulate, acute, tomentose like the sepals but with a glabrous patch at the base inside. *Inner petals* like the outer, but less acute and one-third shorter. *Stamens* about 12, short, about as broad as long, the connective very broad, truncate at the apex. *Ovary* solitary, broadly ovoid,



tapering to the curved, truncate stigma, 2-ovuled. *Ripe carpels* unknown.  
 Penang, on Government Hill at 1,200 feet; Curtis, No. 2266.

A species with rather longer, thinner leaves than *M. Herveyana*,  
 and a different calyx.

II.—*Noviciæ Indicæ* V. *An undescribed Mezoneuron from the Andaman Group*.—By D. PRAIN.

When in the Andamans in 1889 and again in 1890 and 1891 the writer met with a species of *Mezoneuron* which occurs rather frequently in the neighbourhood of Port Blair and which has not hitherto been described. During each of these visits only fruiting specimens were obtained; at length, however, the native collectors who are under the care of Mr. E. H. Man have sent flowering specimens to Calcutta. The subjoined synopsis, in which the position of the new species among the Indian *Mezoneura* described by Mr. Baker, in the *Flora of British India*, 257-259, is shown, is followed by a description of the plant.

MEZONEURON, DESF.

Calyx deeply cleft, disk basal (§ EUMEZONEURON)

filaments hirsute:—

  pods one-seeded, filaments faintly ciliate;

    leaflets glabrous, rigid, opposite, 8-10,

    large, ovate, acute; calyx glabrous ... *M. cucullatum*.

  pods several-seeded, filaments densely pilose:—

    leaflets glabrous:—

      leaflets rigid, alternate, 8-10, large,

      obovate, retuse; calyx glabrous ... *M. andamanicum*.

    leaflets membranous:—

      leaflets alternate, 14-16, small,

      oblong, obtuse; calyx exter-

      nally puberulous ... *M. glabrum*.

    leaflets opposite, 18-22, small.

      oblong, obtuse; calyx glabrous ... *M. enneaphyllum*.

    leaflets pubescent; membranous, opposite,

      12-16, oblong, obtuse; calyx externally

      and internally pubescent ... *M. pubescens*.

Calyx shallowly cleft, disk extending above the

base (§ TUBICALYX); filaments glabrous, pods

several-seeded; leaflets glabrous, rigid, opposite,

8-10, large, obovate-oblong; calyx glabrous ... *M. sumatranum*

Baker describes the calyx of *M. glabrum* as glabrous, but both by his diagnosis and figure Desfontaine (*Mém. Mus.* iv, 243, t. 10) indicates that the calyx is tomentose; the writer has not seen any flowering specimens.

MEZONEURON ANDAMANICUM Prain, sp. nov.

A large climber, branches glabrous with a few pale, scattered prickles. Leaf rachis 1-1½ ft., pinnae 4-10, long-stalked, leaflets 8-10, rigidly subcoriaceous, ½-1½ in. long, alternate, obovate, slightly retuse, base cuneate, glabrous on both surfaces, dark green above, paler below. *Racemes* unbranched, 10-12 inches long, pedicels ¼-½ in. long. *Calyx* leathery, anterior sepal ¼ in. long, deeply cucullate, the others ¾ in. diam. orbicular, all green and delicately reticulately yellow-veined, the interspaces dotted with yellow glands. *Petals* yellow with base and veins reddish, ovate-orbicular, the lateral and anterior pairs subequal and only slightly larger than the lateral and posterior sepals, with very short claws, slightly hirsute internally, the inner and upper (vexillary) petal with a lamina less than ¼ the size of the others, with a thick claw as long as the blade, channelled internally and prolonged at the base of the lamina into a ligular ridge, densely ciliate at its margin, which rests in the angle formed by the declinate filaments. *Stamens* declinate, in two rows, the outer row (5) with lowest stamen single, longer than the rest, curved, the lateral rather shorter, also curved; the upper pair abruptly angularly bent, with the portion of the filaments below the angle thrice as thick as the other filaments and filling up the channel in the claw of the vexillum, the upper portion not thicker than the other filaments, bent backwards over the vexillary ligule. The inner row (5) with upper vexillary stamen smallest of all, simply, declinately curved as are the other four; all filaments densely pilose in the lower 2/3 rds. *Ovary* declinate, about 6-ovuled; style long, stigma terminal, concave, tip slightly fringed. *Pod* thin, 5 inches long, 1 inch wide (including the posterior wing ¼ in. wide) finely reticulated, 3-5 seeded; seed flat, orbicular, embryo exalbuminous, with flat cotyledons and straight radicle.

SOUTH ANDAMAN; near Port Blair at Protheropur, Rangachang, etc., Prain! King's Collectors!

Fl. January—February.



# JOURNAL

OF THE

## ASIATIC SOCIETY OF BENGAL.

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### Part II.—NATURAL SCIENCE.

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No. II.—1892.

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I.—*Catalogue of the Diptera of the Oriental region* by MONS. J. M. F. BIGOT. Part II. *Communicated by the SUPERINTENDENT, INDIAN MUSEUM.\**

Received Sept. 25th, 1891. Read Nov. 4th, 1891.

Sub-division ANEMPODIATA.

*J. Bigot, adhuc ined.*

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#### Family MIDASIDÆ.

Mydasid. Leach, *Edinb. Encyclop.* 1815; Mydas, Latr., *Gener. Crust. et Ins.*, iv, 1809, page 294; Mydasii, Macquart, *S. à Buff. Dipt.*, i, Paris, 1834; Midasidus, Midasina, Rondani, *Prodr.*, i, p. 14, 1856.

#### Genus MIDAS.

Mydas, Fabr., *Entom. Syst.*, iv, p. 252, 1794; *Nemotelus* pt. Degeer; *Bibio*. pt. Fabr.

*ruficornis*, Wiedemann, *Analect. Entomol.*, p. 20.  
Hab. Tranquebar, Madras Pr.

#### Family DASYPOGONIDÆ.

*J. Bigot, adhuc ined.*; *Dasytrogonina*, Rondani, *Prodr.*, i, p. 32, 1856.

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\* In Parts II and III of this Catalogue all species not belonging to the Oriental Region have been struck out. It has also been found necessary to correct many of the references.—Ed.

Genus DASYGON.

Meigen, *Illig. Magas*, ii, p. 270, 1803; *Asilus*, pt. Erax, pt. Scopoli; *Cheilopogon*, pt. Rond.

*nigricauda*, Wiedemann, *Analect. Entomol.*, p. 26; *Microstylum*, id. Macq.  
Hab. India.

*virens*, id., *Auss. Europ. Zweifl. Ins.*, i, p. 398, Hamm, 1823.  
Hab. Java.

*albocinctus*, id., *ibid.*, p. 181; *Dioctria*, id., *Wied. Dipt. Exot.*, i, p. 181.  
Hab. Bengal.

*dorsalis*, id., *ibid.*, p. 413.  
Hab. India.

*incisus*, Macquart, *Dipt. Exot. 5th Suppl.* p. 49, Paris, 1855.  
Hab. India.

*pekinense*, J. Bigot, *Ann. Soc. Ent. France*, p. 410, 1878.  
Hab. China.

*imberbis*, Doleschall, *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1856, p. 408.  
Hab. Java.

*imbutus*, Walker, *Insect. Saunders. Dipt.*, i, p. 96, London, 1856.  
Hab. India.

*apiformis*, id., *ibid.*, p. 97.  
Hab. India.

*trimelas*, id., *ibid.*, p. 97.  
Hab. India.

*pulverifer*, id., *ibid.*, p. 98.  
Hab. India.

*volcatus*, id., *List. Dipt. Ins. Brit. Mus.*, i, p. 346, London, 1848.  
Hab. India.

*sordidus*, id., *ibid.*, vi, *addenda*, i, p. 505, 1854.  
Hab. China.

*hypsaon*, id., *List. Dipt. Ins. Brit. Mus.*, i, p. 348, London, 1848.  
Hab. China.

*ceroo*, id., *ibid.*, p. 349.  
Hab. Hongkong.

*subauratus*, id., *ibid.*, vi, p. 470, 1854.  
Hab. China.

*ambryon*, id., *ibid.*, i, p. 311, 1848.  
Hab. Bengal.

*damias*, id., *ibid.*, i, p. 313.  
Hab. Bengal.

*aphrotes*, id., *ibid.*, i, p. 314.  
Hab. Nepal.

**echelus**, id., *ibid.*, i, p. 314.

Hab. Nepal.

**imbrex**, id., *ibid.*, i, p. 315.

Hab. Nepal.

**inopinatus**, Walker, *Trans. Ent. Soc. London*, 1860, (2) v, p. 278.

Hab. Burma.

**inopportunist**, id., *ibid.*, p. 278.

Hab. Burma.

**decretus**, id., *ibid.*, p. 279.

Hab. Burma.

**proclivis**, id., *ibid.*, p. 277.

Hab. Burma.

**polygnatus**, id., *List. Dipt. Ins. Brit. Mus.* i, p. 305, London, 1848.

Hab. Sylhet.

**rhypis**, id., *ibid.*, p. 305.

Hab. Sylhet.

**balbillus**, id., *ibid.*, p. 307.

Hab. Nepal.

**sura**, id., *ibid.*, p. 345.

Hab. India.

**scatophagoides**, id., *ibid.*, vi, p. 475, 1854.

Hab. India.

**libo**, id., *ibid.*, i, p. 342, 1848.

Hab. India.

**otacilius**, id., *ibid.*, p. 344.

Hab. India.

**lanatus**, Doleschall, *Naturk. Tijdschr. Nederl. Indie, Batavia*, 1857, p. 392.

Hab. Java.

#### Genus SAROPOGON.

Loew, *Linn. Entom.*, ii, p. 439, 1847; *Dasyopogon*, pt.

**scalare**, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 413.

Hab. India.

#### Genus LOCHITES.

Schiner, *Verhandl. K. K. z. b. Gesellsch., Wien*, p. 671, 1866.

**testaceus**, J. Bigot, *Ann. Soc. Ent. France*, p. 425, 1878.

Hab. Burma.

#### Genus LEPTOGASTER.

Meigen, *Illig. Magaz.*, ii, p. 269, 1803; *Gonypes*, Latr. *Gen. Crust. et Ins.*, vol. iv, p. 301, 1809; *Asilus* pt. Degger; *Dasyopogon*, pt.

*nutilis*, Walker, *Journ. Proceed. Linn. Soc., London*, 1857, i, p. 117.

Hab. Borneo.

*vitiosus*, V. d. Wulp, *Tijdschr. Entom.*, Hague, 1872, p. 137.

Hab. Java.

*macilentus*, id., *ibid.*, p. 139.

Hab. Java.

*levis*, id., *ibid.*, p. 140.

Hab. Sumatra.

*varipes*, id., *ibid.*, xxiii, 1880, p. 166.

Hab. Padang.

*simplex*, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 444.

Hab. Ceylon.

*marion*, Walker, *List. Dipt. Ins. Brit. Mus.* ii, p. 434, *London*, 1849.

Hab. Bengal.

*tricolor*, id., *Journ. Proceed. Linn. Soc., London*, i, 1856, p. 117.

Hab. Borneo.

#### Genus MICROSTYLUM.

Macquart, *Dipt. Exot.*, i, 2nd pt., p. 26, *Paris*, 1838; *Dasypogon*, pt. Megapollion, pt. Walker, 1830.

*apicalis*, Macquart, *Dipt. Exot.*, i, 2nd pt., p. 27, *Paris*, 1838; *Dasypogon* id., Wiedem. *Auss. Europ. Zweiflug. Ins.*, i, p. 372, *Hamm*, 1828.

Hab. Bengal.

*sinense*, id., *ibid.*, p. 29; *Dasypogon* id. Fabr. *Syst. Anth.*, p. 169; *Dasypogon* id., Wied. *loc. cit.*, p. 568.

Hab. China.

*spiniterais*, id., *ibid.*, 4th *Suppl.*, p. 61, 1850.

Hab. Sylhet.

*brunnipenne*, id. *ibid.*, p. 62.

Hab. Sylhet.

*bicolor*, id. *ibid.*, p. 62.

Hab. Sylhet.

*flaviventre*, id., *ibid.*, p. 62.

Hab. Sylhet; China.

*amoyense*, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 401.

Hab. Amoy.

*erytropygum*, (*Melius erytropygatum*), id., *ibid.*, p. 462.

Hab. Assam.

*basirufum*, id., *ibid.*, p. 403.

Hab. Assam.

*brevipennatum*, id., *ibid.*, p. 403.

Hab. India.

*eximium*, id., *ibid.*, p. 404.

Hab. Burma.

*hæmorrhoidale*, id., *ibid.*, p. 404.

Hab. Burma.

*nitidiventrìs*, id., *ibid.*, p. 405.

Hab. Burma.

*nigrum*, id., *ibid.*, p. 405.

Hab. Cambodia.

*indutum*, Roudani, *Ann. Mus. Civ. Genova*, 1875, vii, p. 446.

Hab. Sarawak.

*vestitum*, id., *ibid.*, p. 447.

Hab. Sarawak.

*incomptus*, Walker, *Journ. Proceed. Linn. Soc. London*, 1857, i, p. 112.

Hab. Borneo.

*vica*, id., *ibid.*, p. 112.

Hab. Sylhet, Borneo.

#### Genus DAMALIS.

Fabr., *Syst. Anth.*, p. 148, 1805; Dioctria, pt. Chalcidimorpha, pt. Westw.

*myops*, Fabr., *Syst. Anth.*, p. 148, 1805; Chalcidimorpha id. Westw.

Hab. Sumatra.

*tibialis*, Macq. *Dipt. Exot.* i, 2nd pt., p. 154, Paris, 1838.

Hab. India.

*planiceps*, Fabr., *Syst. Anth.*, p. 148, 1805.

Hab. Tranquebar.

*andron*, Walker, *List Dipt. Ins. Brit. Mus.*, London, i, p. 480, 1848.

Hab. Hongkong.

*fuscus*, id., *ibid.*, p. 481.

Hab. Bengal.

*fumipennis*, id., *ibid.*, vii, 3rd Suppl., p. 765.

Hab. Java.

*signatus*, id., *Trans. Ent. Soc., London*, Vol. V, 1858-61, p. 284.

Hab. Burma.

*maculata*, Wiedem., *Ausser. Europ. Zweifl. Ins.* i, p. 416, Hamm., 1823.

Hab. Java.

*saigonensis*, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 443.

Hab. Saigon.

*marginata*, V. d. Wulp, *Tijdschr. Entomol.*, 1872, p. 142.

Hab. Borneo.

*major*, id., *ibid.*, p. 143.

Hab. Borneo.



*pallida*, id., *ibid.*, p. 145.

Hab. Borneo, Sumatra.

*felderi*, Schiner, *Verhandl. K. K. u. b. Gesellsch., Wien*, 1867, p. 865.

Hab. Ceylon.

*grossa*, id., *Novarr. Reise*, 1868, p. 161.

Hab. Hongkong.

#### Genus STICHOPOGON.

Loew, *Linn. Entom.*, ii, 1847, p. 499; *Dasypogon*, pt.

*albicapillus*, V. d. Wulp, *Tijdschr. v. Entom.*, (2) vii 1872, p. 147.

Hab. Java.

*nicobarensis*, Schiner, *Novara. Reise.*, 1868, p. 161.

Hab. Nicobar Islands.

#### Genus LAPHYTIS.

Loew, *Conspect. Act. Acad. R. Sueciae*, xv, 1859, p. 337.

*stigmatalis*, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 430.

Hab. Ceylon.

#### Genus CYRTOPOGON.

Loew, *Linn. Entom.*, ii, 1847, p. 516; *Dasypogon*, pt.

*laphrides*, Walker, *Ins. Saunders. Dipt.*, i, p. 99, *London* 1856.

Hab. India.

*scotophagoides*, id., *List. Dipt. Ins. Brit. Mus.* vi, 2nd *Suppl.* p. 475, *London* 1854.

Hab. India.

#### Genus XYPHOCERA.

Macquart, *S. à Buff. Dipt.*, i, p. 279, *Paris* 1834; *Dasypogon*, pt. *Elasmocera*,

pt. *Rondani*, *Prodr.* i, 1856.

*percheronii*, id., *ibid.*, p. 280.

Hab. Sumatra.

#### Genus HABROPOGON.

Loew, *Linn. Entom.*, 1847, ii, p. 463; *Dasypogon*, pt. *Dactyliscus* pt. *Rondani*,

*Prodr.* i, 1856, p. 158.

*juvundus*, V. d. Wulp, *Bijdr. t. d. Kenn. d. Asilid. v. Ost. Indisch.* Nagua, 1872, p. 148.

Hab. Java.

#### Genus SCYLATICUS.

Loew, *Conspect. Act. Acad. R. Sueciae*, xiv, 1858, p. 342; *Dasypogon*, pt.

*vertebratus*, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 435.

Hab. Java.

degener, Schiner, *Novara. Reise*, 1868, p. 169.  
Hab. Hongkong.

Family ASILIDÆ.

J. Bigot, *adhuc. ined.* 1891; Asilina, Rondani, *Prodr.*, i, p. 32, 1856; Asilines Schiner, 1862.

Genus EMPHYSOMERA.

Schiner, *Novarr. Reise*, 1868, p. 195; Ommatius, pt.

*spathulata*, id., *ibid.*, p. 195; Ommatius id., Doleschall *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1858, p. 89; Ommatius platymelas, Walker, *Journ. Proceed. Linn. Soc., London*, 1862, p. 8.

Hab. Amboina, Nicobar Islands.

*conopsoides*, id., *ibid.*, p. 71; Ommatius id. Wiedemann, *Aus. Europ. Zweiflug. Ins.* i, p. 422, *Hamm* 1828.

Hab. Sumatra.

*nigra*, id., *ibid.*, p. 193.

Hab. Nicobar Islands.

*peregrina*, V. d. Wulp, *Tijdschr. v. Entom.*, vii, Hague, 1872, p. 255.

Hab. Gilolo, Borneo, Sumatra, Ternate, Amboina.

*femorata*, J. Bigot, *Ann. Soc. Ent. France*, 1875, p. 245.

Hab. Ceylon.

*nigrifemorata*, id., *ibid.*, 1876, *Bulletin*, p. 86.

Hab. Amoy.

Genus ALLOCOTOSIA.

Schiner, *Verhandl., K. K. u. b. Gesellsch., Wien*, 1866, pp. 665, 645; Ommatius, pt.

*aurata*, V. d. Wulp, *Tijdschr. v. Entom.*, (2) vii, 1872, Hague, p. 249; Asilus id., *Fabr. Ent. Syst.*, iv, p. 387; Dasypogon id., *Fabr. Syst. Anth.*, p. 167; Ommatius id., *Wiedem. Dipt. Exot.*, i, p. 213, *Auss. Zweifl.*, i, p. 420; Ommatius, id. *Macquart S. d. Buff.* i, p. 314; *Dipt. Exot.*, i, p. 133, Walker, *List Dipt. Ins. Brit. Mus.* vii p. 759.

Hab. Panjab, India.

*triangulum*, id., *ibid.*, p. 251.

Hab. Java.

Genus OMMATIUS.

Illiger; Wiedem., *Ausser. Europ. Zweiflug.*, i, p. 418, *Hamm.*, 1828; Asilus et Dasypogon, pt.

*compeditus*, Wiedem., *ibid.*, p. 419.

Hab. India. ?

*leucopogon*, id., *Analect. Entom.*, p. 25.

Hab. India.

**nanus**, Walker, *Ins. Saunders.*, *Dipt.*, i, London, 1856, p. 153.  
Hab. India.

**gracilis**, id., *Journ. Proceed. Linn. Soc.*, London, i, 1857, p. 14.  
Hab. Singapore.

**hecale**, id., *List Dipt. Ins. Brit. Mus.*, ii, p. 476, London, 1849.  
Hab. Borneo.

**chinensis**, id., *ibid.*, 1849, p. 470; *Dasypogon* id., Fabr., *Syst. Antl.*, p. 169.  
Hab. China.

**spinibarbis**, V. d. Wulp. *Tijdschr. v. Entom.*, p. 265, 1872; Sensus Ost.-Sacken, *Ann. Mus. Civ. Genova*, 1880, p. 425; *O. noctifer*, Walker, *Journ. Proceed. Linn. Soc. London* iii, 1859, p. 88; Sensus Schiner, *Verhandl. K. K. z. b. Gesellsch.*, Wien, 1866, p. 718; *O. minor*, Doleschall, *Naturk., Tijdsch. Nederl. Indie, Batavia*, 1857, p. 394.  
Hab. Borneo, Amboina, Arn Islands, Ternate.

**frauenfeldi**, Schiner, *Novar. Reise*, 1868, p. 193.  
Hab. Nicobar Islands.

**fulvidus**, Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien*, x, 1866, p. 718; Sensus Schiner (*loc. cit.*) *Ommatius* id. *Wied. Ausser. Europ. Zweifl. Ins.*, p. 420, *Hamm*, 1828; *O. ponnus*, Walker, *List. Dipt. Ins. Brit. Mus.* ii, p. 469; *O. coryphe*, Walker, id., *ibid.*; *O. androcles*, Walker, *ib.*, *ibid.*, p. 470; *Asilus garnoti*, Guerin, *Voy. de la Coquille*, pl. xx, fig. 8; Sensus Ost.-Sacken, *Ann. Mus. Civ. Genova* xvi, 1881, p. 424; *O. inextricatus*, Walker, *Journ. Proceed. Linn. Soc. London*, vi, 1862, p. 21.  
Hab. Sumatra, Borneo, Celebes, Amboina, Ceram, Corea, Sandwich Islands.

**plotipennis**, J. Bigot, *Ann. Soc. Ent. France*, 1875, p. 246.  
Hab. Pulo-Penang.

**rufipes**, Macq., *Dipt. Exot.*, i, 2nd pt., p. 133, Paris, 1838.  
Hab. Java.

**dispar**, id., *ibid.*, *Suites du 2nd Suppl.*, p. 28.  
Hab. Java.

**taeniomerus**, Rondani, *Ann. Mus. Civ. Genova*, 1875, p. 440.  
Hab. Sarawak.

**conopsoides**, id., *ibid.*, p. 450.  
Hab. Sarawak.

**signinipes**, id., *ibid.*, p. 450.  
Hab. Sarawak.

**despectus**, V. d. Wulp, *Tijdschr. v. Entom.*, 1872, p. 268.  
Hab. Java.

**impeditus**, id., *ibid.*, p. 270.  
Hab. Borneo.

**argyrochirus**, id., *ibid.*,  
Hab. Java.

*insularis*, id., *ibid.*, p. 272.

Hab. Java.

*pinguis*, id., *ibid.* p. 275.

Hab. Java.

*rubicundus*, id., *ibid.*, p. 276

Hab. Sumatra, Java and Borneo.

*suffusus*, V. D. Walp, *Tijds. v. Entom.*, Hague, 1872, p. 271.

Hab. Sangir, Java ? Sumatra ?

# GENUS PROMACHUS.

Loew, *Linr. Entom.*, iii, p. 390, 1848; *Asilus*, pt. *Trupanea*, pt. *Macq. Dipt. Exot.*, i, 2nd pt., p. 91, *Paris*, 1838.

*marcii*, Schiner, *Verhandl. K. K. z. b. Gesellschaft., Wien*, 1866, p. 711; *Trupanea* id. *Macq., Dipt. Exot.* i, 2nd pt., p. 97, *Paris*, 1838.

Hab. India.

*orientalis*, id., *ibid.*, p. 711; *Trupanea* id. *Macq. loc. cit.* p. 96.

Hab. India.

*rufimistacea*, id., *ibid.*, p. 711; *Trupanea* id. *Macq. loc. cit.*, 4th *Suppl.*, p. 80, *Paris*, 1850.

Hab. Java.

*albopilosus*, id., *ibid.*, p. 711; *Trupanea* id., *Macq., loc. cit.*, 5th *Suppl.*, p. 57.

Hab. China.

*testaceipes*, id., *ibid.*, p. 711; *Trupanea* id., *Macq., loc. cit.* 5th *Suppl.*, p. 58.

Hab. China.

*viridiventris*, id., *ibid.*, p. 711; *Trupanea* id., *Macq., loc. cit.*, 5th *Suppl.*, p. 58.

Hab. China.

*pallipennis*, id., *ibid.*, p. 711; *Trupanea* id., *Macq., loc. cit.*, 5th *Suppl.*, p. 58.

Hab. China.

*heteropterus*, id., *ibid.*, p. 711; *Trupanea* id., *Macq., loc. cit.* 2nd pt., i, p. 96, 1838.

Hab. Malabar.

*amorges*, id., *ibid.*, p. 711; *Trupanea* id., Walker, *List. Dipt. Ins. Brit. Mus.*, ii, p. 391, 1849.

Hab. Borneo.

*nicobarensis*, Schiner, *Novar. Reise*, 1868, p. 177.

Hab. Nicobar Islands.

*antiotus*, Walker, *List. Dipt. Ins. Brit. Mus.*, vii, 3rd *Suppl.*, p. 604, *London*, 1855; *Asilus* id., Walker, *loc. cit.*, ii, p. 392, 1849.

Hab. China.

*gobares*, id., *ibid.*, p. 604; *Asilus* id., Walker, *loc. cit.*, 1849, p. 420.

Hab. Sylhet.

*maculatus*, Loew, *Linn. Entom.*, iii, p. 406; Senu V. d. Wulp, *Tijdschr. Entom.*, 1872, Hague; *Asilus* id., Fabr., *Syst. Ent.*, p. 794; *Asilus* id., Wiedem., *Zool. Mag.*, p. 28; *Asilus* id., Meig., *Syst. Besch.*, ii, p. 231; *Trupanea* id., Macq., *Dipt. Exot.*, i, Pt. 2, p. 99, Paris, 1838; *Trupanea* id., Walker, *List. Dipt. Ins. Brit. Museum*, vii, 3rd Suppl., 1855, p. 585.

Hab India.

*bifasciatus*, V. d. Wulp, *Tijdschr. v. Entom.*, Hague, 1872, p. 223; *Trupanea*, id., Macq., *Dipt. Exot.*, i, 2nd Pt., p. 98, Paris, 1838.

Hab Java.

*melampyrgus*, id., *ibid.*, p. 223.

Hab Java, Celebes.

*leucopareus*, id., *ibid.*, p. 227.

Hab Java.

*inornatus*, id., *ibid.*, p. 231.

Hab Borneo.

*felinus*, id., *ibid.*, p. 231.

Hab Borneo.

*vittula*, id., *ibid.*, 1879-80, xxiii, p. 167.

Hab Borneo.

### Genus *ALCIMUS*.

Loew, *Linn. Entom.*, 1848, iii, p. 391; *Trupanea*, pt. Macq., *Dipt. Exot.*; *Asilus*, Pt.

*hospes*, Schiner, *Verhandl. K. K. z. b. Gesellsch.*, Wien, 1866, p. 712; *Asilus* id., Wiedem., *Zool. Mag.*, iii, p. 32.

Hab. Tranquebar, Madras Pr.

### Genus *PHILODICUS*.

Loew, *Linn. Entom.*, 1848, iii, p. 391; *Asilus* pt.; *Trupanea*, pt. Macq., *Dipt. Exot.*

*fuscus*, Schiner, *Verhandl. K. K. z. b. Gesellsch.*, Wien, i, 1866, p. 712; *Trupanea* id., Macq., *Dipt. Exot.*, i, 2nd Pt. p. 104, Paris, 1838.

Hab. Bengal.

*agnitus*, id., *ibid.*, *Asilus* id., Wied., *Zool. Mag.*, iii, p. 35.

Hab. Sumatra.

*javanus*, id., *ibid.*, Senu V. d. Wulp, *Tijdschr. v. Entom.*, 1872, p. 232; *Asilus* id., Wied., *Zool. Mag.*, iii; *Trupanea javana*, Macq., *Dipt. Exot.*, i, 2nd pt., p. 98, Paris, 1838; et, *Trupanea rubritarsata*, Macq., *loc. cit.*, p. 98; *Asilus perplexus*, Wiedem., *Ausser. Europ. Zool. Ins.*, i, p. 495, Hamm, 1828.

Hab Java, Sumatra.

*innotabilis*, id., *ibid.*, p. 712; *Trupanea* id., Walker, *List. Dipt. Ins. Brit. Mus.*, vii, 3rd Suppl. p. 601, London, 1855.

Hab Java, Sumatra.

**externo-testacea**, id, ibid., *Trupanea* id., Macq., *Dipt. Exot.*, 4th Suppl., p. 81, Paris, 1850.

Hab. Java.

**rubritarsatus**, id., ibid., *Trupanea* id., Macq., *loc. cit.*, i, 2nd Pt., p. 90, Paris, 1838.

Hab. Java.

**westermanni**, id., ibid., p. 712; *Trupanea* id., Macq., *loc. cit.*, p. 98.

Hab. Java.

**rufibarbis**, id., ibid., *Alcimus* id., Macq., *loc. cit.*, *Suites du 2nd Suppl.*, p. 25, 1847.

Hab. Java.

**confinis**, id., ibid., *Trupanea* id., Walker, *List. Dipt. Ins. Brit. Mus.*, vii, 3rd Suppl., p. 606, London, 1855.

Hab. Java.

**ceylanticus**, Schiner, *Novar. Reise*, 1868, p. 179.

Hab. Ceylon.

**chinensis**, id., ibid., p. 712.

Hab. China.

**rufoungulatus**, id., *Verhandl. K. K. z. b. Gesellsch. Wien*, 1860, p. 712; *Trupanea*, id., Macq., *Dipt. Exot.*, i, 2nd Pt., p. 90, Paris, 1838.

Hab. Cochinchina.

### Genus PHILONICUS.

Loew, *Linn. Entom.*, 1849, iv, p. 144; 1849, *Asilus* pt.

**nigrosetosus**, V. d. Wulp, *Sumatra Expedit.*, p. 24.

Hab. Borneo.

### Genus TRUPANEA.

Macq., *Dipt. Exot.*, i, 2nd part, p. 91, Paris, 1838; *Asilus*, pt. *Philodius*, *Philonicus*, *Promachus*, *Proctachantus*, pt. Loew et auctor.

**navibarbis**, Macq., id., ibid., p. 96.

Hab. Pondicherry.

**varipes**, id., ibid., p. 97.

Hab. Bengal.

**duvaucelti**, id., ibid., p. 97.

Hab. Bengal.

**bifasciata**, id., ibid., p. 96.

Hab. Java.

**apicalis**, id., ibid., p. 100.

Hab. Cochin China.

**albopillosa**, (*nomen dialectum*), Rondani, *Ann. Mus. Civ. Genova*, v 1875, p. 452.

Hab. Borneo.

*leucopyga*, Walker, *Trans. Ent. Soc. London*, 1857, p. 129.

Hab. China.

*apivora*, id., *ibid.*, p. 282.

Hab. Burmah.

*inserens*, id., *Journ., Proceed. Linn. Soc. London*, 1857, p. 116.

Hab. Borneo.

*univentris*, id., *Ins. Saunders., Dipt.*, i, p. 114, *London*, 1856.

Hab. India.

*agnita*, id., *List. Dipt. Ins. Brit. Mus.*, vii, *Suppl.*, iii, p. 602, *London*, 1855 ;

*Asilus* id. Wiedem., *Zool. Mag.*, iii, p. 35.

Hab. Sumatra.

*maculipes*, id., *ibid.*, p. 605.

Hab. Hongkong.

*contracta*, id., *Ins. Saunders., Dipt.*, i, p. 120, *London*, 1856.

Hab. India.

*telfera*, id., *ibid.*, p. 115.

Hab. India.

*sagittifera*, id., *ibid.*, p. 116.

Hab. India.

*calanus*, id., *ibid.*, p. 122.

Hab. India.

#### Genus ERAX.

*Scopoli*, *Dipt.*, 1763 ; *Macq. Dipt. Exot.*, i, 2nd pt., p. 107, *Paris*, 1838 ;  
*Eristicus*, pt. Loew ; *Asilus*, pt.

*rufiventris*, *Macq., Dipt. Exot.*, i, 2nd pt., p. 108, *Paris*, 1838.

Hab. Bengal.

*sinensis*, id., *ibid.*, p. 108.

Hab. China.

*curiatus*, Walker, *List. Dipt. Ins. Brit. Mus.*, vii, 3rd *Suppl.*, p. 642, 1855.

Hab. Nepal.

#### Genus ASILUS.

*Linn., Faun. Suec.*, 1761, p. 469.

*atratus*, Walker, *List. Dipt. Ins. Brit. Mus., London*, vii, *Suppl.*, iii, p. 724, 1855.

Hab. Java.

*chinensis*, *Fabr., Ent. Syst.*, iv, p. 383.

Hab. China.

*annulatus*, id., *Syst. Ent.*, p. 794.

Hab. India.

*loetus*, Wiedem., *Anal. Entom.*, p. 24.

Hab. India.

*bifidus*, Wiedem., *Auser. Europ. Zweifl. Ins.*, 1st Part, p. 444, *Hamm*, 1828; *Dasy-*  
*pogon*, id., *Fabr*, *Syst. Antl.*, p. 170.

Hab. Tranquebar, Madras Pr.

*pusio*, id., *Zoolog. Mag.*, iii, p. 36.

Hab. India.

*agilis*, id., *Auser. Europ. Zweifl. Ins.*, 1st Part, p. 456, *Hamm*, 1828.

Hab. Java.

*bengalensis*, Macq., *Dipt. Exot.*, i, 2nd Pt., p. 141, *Paris*, 1838.

Hab. Bengal.

*flavicornis*, id., *ibid.*, p. 142.

Hab. Bengal.

*trifarius*, id., *ibid.*, p. 142.

Hab. Pondicherry.

*claripes*, id., *ibid.*, p. 142.

Hab. Java.

*nudipes*, id., *ibid.*, 2nd *Suppl.*, p. 42, 1846.

Hab. India.

*appendiculatus*, id., *ibid.*, *Suites du 2nd Suppl.*, p. 29, 1847.

Hab. Java.

*nigrimystaceus*, id., *ibid.*, 4th *Suppl.*, p. 91, 1850.

Hab. Pondicherry.

*rufibarbis*, id., *ibid.*, p. 91.

Hab. Java.

*albibarbis*, id., *ibid.*, p. 91.

Hab. Java.

*sphippium*, id., *ibid.*, 5th *Suppl.*, p. 62, 1855.

Hab. Java.

*maculifemora*, id., *ibid.*, p. 62.

Hab. China.

*armatipes*, id., *ibid.*, p. 63.

Hab. China.

*limbipennis*, id., *ibid.*, p. 63.

Hab. China.

*misao*, id., *ibid.*, p. 64.

Hab. China.

*sundaicus*, Jaenicke, *Nou. Esot. Dipt.*, p. 55, *Frankfurt*, 1867.

Hab. Java.



**shalumus**, Walker, *Trans. Ent. Soc., London*, iv, 1857, p. 131.

Hab. China.

**flagens**, id., *Journ. Proceed. Linn. Soc., London*, 1857, p. 116.

Hab. Sarawak.

**contortus**, id., *ibid.*, p. 117.

Hab. Sarawak.

**barium**, id., *List. Dipt. Ins. Brit. Mus.*, ii, p. 426, *London*, 1849.

Hab. Ceylon, Singapore, Sarawak.

**fusiformis**, id., *Journ. Proceed. Linn. Soc., London*, i 1857, p. 13.

Hab. Malacca.

**lineosus**, id., *ibid.*, p. 13.

Hab. Singapore.

**debilis**, id., *ibid.*, p. 13.

Hab. Malacca.

**latifascia**, id., *ibid.*, p. 14.

Hab. Singapore.

**minusculus**, Rondani, *Ann. Mus. Civ. Genova*, 1875, p. 451.

Hab. Sarawak.

**melanurus**, Dolleschall *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1856, p. 408.

Hab. Java.

**barbatus**, id., *ibid.*, 1857, p. 393.

Hab. Amboina.

**penultimus**, id., *Ins. Saunders. Dipt.*, i, p. 134, *London*, 1856.

Hab. India.

**congedus**, id., *ibid.*, p. 138.

Hab. India.

**tamenus**, id., *List. Dipt. Ins. Brit. Mus., London*, ii, p. 428, 1849.

Hab. Bengal.

**paterculus**, id., *Insect. Saunders. Dipt.*, i, p. 146, *London*, 1856.

Hab. India.

**præfinitens**, id., *ibid.*, p. 146.

Hab. India.

**apicata**, id., *ibid.*, p. 436.

Hab. Java.

#### Genus ANTIPALUS.

Loew, *Linn. Entom.* iv, 1849, p. 136; *Asilus*, pt.

**wienseckii**, V. der Wulp, *Tijdschr. v. Entom.*, 1872, *Hague*, p. 238.

Hab. Timor, Java.

Genus STYLOCTUS.

Loew, *Consp. Act. Acad. R. Suecicæ*, xiv, p. 343, 1858; *Asilus* pt.

*xanthopus*, V. der Wulp, *Tijdschr. v. Ent.*, Hague, 1872, p. 240.  
Hab. Sumatra.

Genus MOCHTERUS.

Loew, *Linn. Entom.*, iv, 1849, p. 58; *Asilus*, pt.

*petruelis*, V. der Wulp, *Tijdschr. v. Ent.*, Hague 1872, p. 244.  
Hab. Java.

Genus ITAMUS.

Loew, *Linn. Entom.*, iv, 1849, p. 84; *Asilus*, pt.

*dipygus*, Schiner, *Novar. Reise*, 1868, p. 188.  
Hab. Nicobar Islands.

*latro*, Schiner, id., *ibid.*, p. 189. *Asilus* id., Doleschall, *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1857, p. 394.  
Hab. Java.

*griseus*, V. der Wulp, *Tijdschr. v. Entom.*, 1872, p. 246; *Asilus* id., Wiedem., *Ausser. Europ. Zweifl. Ins.* i, p. 412, *Hamm*, 1828.  
Hab. Java.

*longistylus*, id., *ibid.*, p. 247; *Asilus* id. Wiedem., *loc. cit.*, p. 433.  
Hab. Java.

*fraternus*, id., *Naturlijke Historia IX, Sumatra Reisen*, p. 25, *Asilus* id., Macq., *Dipt. Exot., Suppl.*, i, p. 91, *Paris*, 1846.  
Hab. Borneo, Sumatra, Tasmania.

Genus TOLMEBUS.

Loew, *Linn. Entom.*, 1849, iv, p. 94; *Asilus*, pt.

*agilis*, Schiner, *Verhandl. K. K. u. b. Genellsch. Wien*, xvi, 1866, p. 717; *Asilus* id., Wiedem., *Ausser. Europ. Zweifl. Ins.*, i, p. 456, *Hamm*, 1828.  
Hab. Java.

*nicobarensis*, Schiner, *Novar. Reise*, 1868, p. 192.  
Hab. Nicobar Islands.

Family LAPHRIDÆ.

J. Bigot, *adhuc. ined.*; *Laphrina*, Boudani, *Prodr.*, i, p. 32, 1856; *Laphrina*, Schiner, 1862.

Genus *ATOMOSIA*.

Macq., *Dipt. Exot.*, i, 2nd Pt., p. 73, Paris, 1838; *Laphria*, pt. Cormansis, pt. Walker.

*purpurata*, Westwood, *Trans., Ent. Soc., London*, v, 1847-49, p. 233.  
Hab. India.

*halictides*, (*Cormansis* id.) Walker, *Ins. Saunders. Dipt.*, ii, p. 154, London, 1856.  
Hab. India.

Genus *NUSA*.

Walker, *Ins. Saunders. Dipt.*, i, p. 105, London, 1856.

*aequalis*, id., *ibid.*, p. 105; *Andrenosoma* id., Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien*, 1866, p. 709.  
Hab. India.

*formio*, id., *ibid.*, p. 106; *Andrenosoma* id., Schiner, *loc. cit.*  
Hab. India.

Genus *MICROTAMIA*.

Macq., *Dipt. Exot.*, i, 2nd Pt., p. 72, Paris, 1838.

*analis*, id., *ibid.*, p. 72.  
Hab. Bengal, Java.

*annulata*, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 239.  
Hab. Burma.

Genus *LAXENECERA*.

Macq., *Dipt. Exot.*, i, 2nd Pt., p. 77, Paris, 1838; *Laphria*, pt. *Dyseris*, pt. Loew; *Acurana* pt. Walker, *Ins. Saunders. Dipt.*, ii, 1856, p. 107.

*albibarbis*, id., *ibid.*, p. 78; id. *Acurana sexfasciata*, Walker, *Ins. Saunders. Dipt.*, ii, p. 107; See Walker, *List. Dipt. Ins. Brit. Mus.*, vii, *Suppl.*, iii, 1855, p. 572.  
Hab. Bengal.

*flavibarbis*, id., *ibid.*, p. 77; Sensus Walker, *List. Dipt. Ins. Brit. Mus., London* vii, *Suppl.*, iii, 1855, p. 572; *Laphria hirticornis*? Guerin, *Icon. Règne. Anim. Ins.*, pl. 94.  
Hab. India.

Genus *HYPERECHIA*.

Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien*, 1866, p. 673; *Laphria* pt.

*xylocopiformis*, Walker, *List. Dipt. Ins. Brit. Mus.*, ii, p. 385, London, 1849.  
Hab. Madras.

Genus DASYLLIS.

Loew, *Bemerk. z. Fam. d. Asilid.*, 1851, p. 20; Laphria, pt.

*gigas*, Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien*, 1866, p. 706; Laphria id., *Macq., Dipt. Ex.* i, 2nd Pt., p. 65, Paris, 1838.

Hab. India.

Genus ANDRENOSOMA.

Rondani, *Prodr.*, i, p. 160, 1856; Laphria, pt.

*crassipes*, Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien*, 1866, p. 709; Laphria id., *Fabr., Syst. Anth.*, p. 152.

Hab. Sumatra.

*fusifera*, id., *ibid.*; Laphria id., *Walker, Journ. Proceed. Linn. Soc., London*, i, 1857, p. 12.

Hab. Singapore.

Genus ACURANA.

Walker, *Ins. Saunders.* i, 1856, p. 107; Laphria, pt.

*sexfasciata*, id., *ibid.*, p. 107.

Hab. India.

Genus CHEREADES.

Walker, *Ins. Saunders.* i, 1856, p. 109; Laphria, pt.

*aurigena*, id., *ibid.*, p. 109.

Hab. Java, Sumatra.

Genus POGONOSOMA.

Rondani, *Prodr.*, i, 1856, p. 160; Laphria, pt.

*stigmatica*, V. d. Walp, *Tijdschr. v. Entom.*, Hague, 1872, p. 157.

Hab. Sumatra.

*beccarti*, Rondani, *Ann. Mus. Civ. Genova*, i 1875, p. 449.

Hab. Sarawak.

Genus LAMPRIA.

*Macq., Dipt. Exot.*, i, 2nd Pt., Paris, 1838, p. 60; Laphria, pt.

*auribarbis*, Macq., id., *ibid.*, *Suites du 2nd Suppl.*, Paris, 1847, p. 22.

Hab. Java.

Genus MAIRA.

Schiner, *Novar. Reise*, 1868, p. 173; Laphria, *Dasyllis*, Lampria, pt.

*spectabilis*, Ssensu Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien*, xvi, 1866, p. 708; Laphria, id., (*alias splendida*), Gnetin, *Voyage Coquille*, ii, p. 292; Laphria kollari

Doleschall *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1857, p. 396; *Laphria*, Socia, Consobrina, Comes, Replens, Walker, *Journl. Proceed. Linn. Soc., London*, 1859, pp. 84, 85, et 1861, p. 234; *Sensu*. Osten-Sacken., *Laphria congrua*, Walker, *loc. cit.*, 1861, p. 277.

Hab. Amboina, etc.

*elegans*, Schiner, *Verhandl. K. K. s. b. Gesellsch. Wien*, 1866, p. 708; *Laphria id.*, Walker, *List. Dipt. Ins. Brit. Museum, London*, vii, 3rd Suppl., 1855, p. 551.

Hab. India.

*producta*, *id.*, *ibid.*, p. 708; *Laphria id.*, Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 114.

Hab. Borneo.

*scapularis*, *id.*, *ibid.*; *Laphria id.*, Wiedem., *Ausger. Europ. Zweiflug. Ins.*, 1st Part, *Hamm*, 1828, p. 516.

Hab. Java.

*anea*, *Sensu* V. d. Wulp, *Tijdschr. v. Entom.*, 1872, Hague, p. 202; *Laphria id.*, Fabr., *Syst. Antl.*, p. 161; *Lamprina id.* Macq., *Dipt. Exot. Suites du 2nd Suppl. Paris*, 1847, p. 21; *Laphria cyanea*, Macq., *S. d. Buff. Dipt.*, i, p. 286; *Laphria colorata*, Boisdual, *Foy., de l'Astrolabe*.

Hab. Java, New Guinea.

*nycthemera*, V. d. Wulp, *Tijd. v. Entom.*, Hague, 1872, p. 208.

Hab. Java.

*tuberculata*, *id.*, *ibid.*, p. 211.

Hab. Java.

*hispidella*, *id.*, *ibid.*, p. 213.

Hab. Java.

*nigrithorax*, *id.*, *ibid.*, p. 210.

Hab. Sumatra.

*paria*, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 230.

Hab. India.

*\*gambodgiensis*, *id.*, *ibid.*, p. 230.

Hab. Cambodia.

## GENUS LAPHRIA.

Fabr., *Syst. Antl.*; *Asilus*, pt. Linn. (*et auctor.*). \*

*reinwardti*, Wiedem., *Ausger. Europ. Zweiflug. Ins.* 1st Part, p. 503, *Hamm*, 1828; *Sensu* Schiner, *Verhandl. K. K. s. b. Gesellsch. Wien*, 1866, p. 707, *Laphria fervens*, Walker, *List. Dipt. Ins. Brit. Mus., London*, vii, 3rd Suppl., p. 554, 1855. \*

Hab. Java.

*alternans*, *id.*, *ibid.*, p. 511; *Sensu* Walker *List. Dipt. Ins. Brit. Mus., London*, vii, 3rd Suppl., 1855, p. 555.

Hab. Java.

- vulcanus*, id., *ibid.*, p. 514.  
Hab. Java, N. Ceram.
- leucoprocta*, id., *ibid.*, p. 517.  
Hab. Java.
- javana*, Macquart, *S. à Buff. Dipt.*, i, p. 282, Paris, 1834.  
Hab. Java.
- senomera*, id., *Dipt. Esot.*, i, 2nd Part, p. 65, Paris, 1838.  
Hab. Bengal.
- latere-punctata*, id., *ibid.*, p. 66.  
Hab. China.
- luteipennis*, id., *ibid.*, *Suites du 2nd Suppl.*, p. 23, 1847.  
Hab. Java.
- flavifacies*, id., *ibid.*, *4th Suppl.*, p. 72, 1850.  
Hab. Java.
- bipartita*, id., *ibid.*, *5th Suppl.*, p. 52.  
Hab. Java.
- semifulva*, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 223.  
Hab. India.
- melania*, id., *ibid.*, p. 224.  
Hab. Islands of the Indian Archipelago.
- claripennis*, id., *ibid.*, p. 224. \*
- Hab. Ceylon.
- sobria*, Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 12.  
Hab. Singapore.
- basigutta*, id., *ibid.*, p. 11.  
Hab. Singapore.
- radicalis*, id., *ibid.*, p. 11.  
Hab. Singapore.
- basifera*, id., *ibid.*, p. 11.  
Hab. Singapore.
- orcus*, id., *ibid.*, p. 10.  
Hab. Singapore.
- notabilis*, id., *ibid.*, p. 10.  
Hab. Malacca.
- inaurea*, id., *ibid.*, p. 11.  
Hab. Singapore.
- plana*, id., *ibid.*, p. 12.  
Hab. Singapore.

*imbellis*, id., *ibid.*, p. 12.

Hab. Singapore.

*unifascia*, id., *ibid.*, i 1857, p. 113.

Hab. Borneo.

*comptissima*, id., *ibid.*, p. 113.

Hab. Borneo.

*rudis*, id., *ibid.*, p. 114.

Hab. Borneo.

*lepidis*, id., *ibid.*, p. 114.

Hab. Borneo.

*completa*, id., *ibid.*, p. 114.

Hab. Borneo.

*incivilis*, id., *ibid.*, p. 115.

Hab. Borneo.

*partita*, id., *ibid.*, p. 115.

Hab. Borneo.

*interrupta*, id., *ibid.*, p. 115.

Hab. Borneo.

*cingulifera*, id., *ibid.*, p. 115.

Hab. Borneo.

*detecta*, id., *ibid.*, p. 116.

Hab. Borneo.

*constricta*, id., *List Dipt. Ins. Brit. Mus., London*, vii, 3rd Suppl., 1855, p. 555.

Hab. Sumatra.

*shalumus*, id., *List Dipt. Ins. Brit. Mus., London*, ii, 1849, p. 371.

Hab. Hong-Kong.

*abscessa*, id., *Trans. Entom. Soc., London*, 1853, p. 282.

Hab. Burma.

*horrida*, id., *List Dipt. Ins. Brit. Mus., London*, vii, 3rd Suppl., 1855, p. 551.

Hab. Sumatra.

*dica*, id., *ibid.*, p. 551.

Hab. Sumatra.

*chrysotelus*, id., *ibid.*, p. 552.

Hab. India.

*elva*, id., *List Dipt. Ins. Brit. Mus., London*, ii, 1849, p. 445.

Hab. Bengal.

*triangularis*, id., *ibid.*, vii, 3rd Suppl., 1855, p. 553.

Hab. Sumatra.

*fervens*, id., *ibid.*, p. 554.

Hab. Sumatra.

*sæva*, id., *ibid.*, p. 554.

Hab. Sumatra.

*blumei*, V. d. Wulp, *Tijdschr. v. Entom.*, Hague, 1872, p. 170.

Hab. Java.

*ignobilis*, id., *ibid.*, p. 173.

Hab. Java.

*mulleri*, id., *ibid.*, p. 174.

Hab. Borneo, Java.

*gravipes*, id., *ibid.*, p. 175.

Hab. Java.

*collita*, id., *ibid.*, p. 178.

Hab. Java.

*histrionica*, id., *ibid.*, p. 179.

Hab. Java.

*aureola*, id., *ibid.*, p. 180.

Hab. Java.

*futilis*, id., *ibid.*, p. 183.

Hab. Borneo, Sumatra.

*signatipes*, id., *ibid.*, p. 191.

Hab. Sumatra.

*diversa*, id., Sumatra Expedi, V. d. Wulp, p. 22.

Hab. Silago.

*barbierura*, Rondani, *Ann. Mus. Civ. Genova*, 1875, p. 447.

Hab. Sarawak.

*fulvicrura*, id., *ibid.*, p. 448.

Hab. Sarawak.

*seticrura*, id., *ibid.*, p. 448.

Hab. Sarawak.

*taphius*, Walker, *List. Dipt. Ins. Brit. Mus.*, London, 1848, p. 380.

Hab. Ceram, Philippine Is.

#### Family THEREVIDÆ.

J. Bigot, *adhuc inæd.* 1891; *Xylotomæ*, Meig., *Syst. Besch.*, ii, 1820; *Xylotomes*, Macq., *S. à Buff.*, *Dipt.* i, p. 416, Paris, 1834, Walker, Schiner; *Anthracini*, pt. Fallen; *Therevinae*; *Therevina*, Rondani, *Prodr.*, i, 1856, pp. 31 et 155; *Bombylidae*, pt. (*olim*). J. Bigot.



Genus *THEREVA*.

Fallen, 1820, *Rhisom.*; Thereva, Latr., *Precis Caract. Ins.* 1796; Psilcephala pt. Zetterst., *Dipt. Scand.*, i, 1842; Dialineura pt. Rond., *Prodr.*, i, 1856, p. 155; Bibio, pt. Panzer, Fallen; Nemotelus, pt. Degeer.

*nigella*, Wiedemann, *Ausser. Europ. Zweiflug. Ins.*, i, p. 232, Hamm, 1828.  
Hab. Tranquebar, Madras Pr.

*albina*, id., *Zool. Magaz.*, iii, p. 3.  
Hab. Java.

• *bigoti*, (= *Psilcephala indica* Bigot, name already occupied by Walker's species)  
J. Bigot, *Ann. Soc. Ent. France*, 1889, p. 326.  
Hab. India.

*sequa*, Walkor, *Ins. Saunders Dipt.*, i, p. 157, London, 1856.  
Hab. India.

*sequens*, id., *ibid.*, p. 158.  
Hab. India.

*persequa*, id., *ibid.*, p. 158.  
Hab. India.

*nivaria*, id., *ibid.*, p. 159.  
Hab. India.

*indica*, id., *ibid.*, p. 159.  
Hab. India.

*cylindrica*, id., *List Dipt. Ins. Brit. Mus.*, London, i, 1848, p. 224.  
Hab. India.

*lateralis*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, i, p. 231, Hamm, 1828.  
Hab. Ternate, Manilla.

*præcedens*, Walker, *Journ. Proceed. Linn. Soc.*, London, i 1857, p. 118.  
Hab. Borneo.

Family EMPIDÆ (Hybotidæ).

Empidi, J. Bigot, *Ann. Soc. Ent. France*, 1889, p. 111 et 114; Hybotidæ, Hemerodromyde, Tachydromyde, id., *loc. cit.*; Empides, Latr., *Nouv. Dict. Hist. Nat.*, 1804; Empidi, Fallen, *Spec. Ent.*, 1810; Empidæ, id., *Disp. Dipt.*, 1817; id., Loew, Meigen; Empidæ, Leach, *Sam. Comp.*, 1819; Meigen, *Syst. Besch.*, 1820; Hybotinæ, pt. Tachydromyde et Tachydromynæ, Lutr. Zetterst. Macq., Wiedem.; Tachydromia, pt. Macq., *S. à Buff. Dipt.*; Empides, Hybotides, J. Bigot (*olim*); Empidii, Rondani, *Prodr.*, i, 1856; Empidæ, Empidina, Tachydromynæ, Philodromyna, Hybotidina, (*olim*). Empidinæ, Walker, *List Dipt. Ins. Brit. Mus.*, London, iii, p. 485, 490, 1849; Meig., *Syst. Besch.*, 1820; Asilus Scopoli, pt. Empinæ, Hybotinæ, Schiner, 1862.

**Genus HYBOS.**

Meigen, pt. *Illig. Magaz.*, ii, 1803, p. 269; *Musca*, pt. Linn.; *Empis*, *Dasypteron*, *Atilus*, pt. Fabr.; *Acromyia*, Bonelli, *Manuser.*, *Encyclop.*, xi, 1819; *Hybotidina*, Rond., pt. *Prodr.*, i, 1856, p. 152.

*ragatinus*, J. Bigot, *Ann. Soc. Ent. France*, 1889, p. 127.  
Hab. India.

*brachialis*, Rondani, *Ann. Mus. Civ. Genova*, 1875, p. 446.  
Hab. Borneo.

**Genus PTEROSPYLUS.**

Rondani, *Prodr.*, i, 1856, p. 152; *Harpamorus*, J. Bigot, *Rev. et Mag. Zool.*,\* *Guerin*, 1859, p. 306; *Epiceia*, pt. Walker, *Journ. Proceed. Linn. Soc.*, London, 1861, p. 149.

*bicolor*, J. Bigot, *Ann. Soc. Ent. France*, 1889, p. 127.  
Hab. India.

**Genus HILARA.**

Meigen., *Syst. Besch.*, 3rd Pt., *Hamm*, 1822; *Biblio*, pt. Panzer; *Tachydromyia*, pt. Fabr.; *Empis*, pt. Fabr. Fallen.

*baras*, Walker, *List. Dipt. Ins. Brit. Mus.*, iii, p. 491, London, 1849.  
Hab. India.

**Family DOLICHOPODÆ.**

*Dolichopodi*, J. Bigot, *adhuc. ined.* 1891; *Dolichopodes*, Latr., *Gen. Crus. et Ins.*, iv, 1809; *Dolichopidæ*, Leach, *Sam. Comp.*, 1819; *Dolichopodes*, Macq., *S. à Buff. Dipt.*, Paris, i, 1834, p. 434; *Dolichopidæ*, Rondani, *Prodr.*, i, p. 29, 1856; *Dolichopinæ*, (*olim*), Rond., *loc. cit.*; *Dolichopinæ*, Rondani, *Prodr.*, p. 140, et *Raphina*, p. 145; *Dolichopodii*, (*olim*), J. Bigot; *Dolichopidæ*, Schiner; *Dolichopodes*, Walker, *List. Dipt. Ins. Brit. Mus.*, London, iii, 1849, p. 641.

**Genus SPATHISILOPUS.**

J. Bigot, *Ann. Soc. Ent. France*, 1890, p. 268; *Psilopus*, *Psilopodius*, Rondani, pt.

*globifer*, J. Bigot, *loc. cit.*, p. 268; *Psilopus*, id., Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 221.  
Hab. China.

**Genus PSILOPODIUS.**

Rondani, *Prodr.*, iv, Pt. 3, 1861, p. 11; *Psilopodius*, J. Bigot, *Ann. S. Ent. France*, *Psilopus*, Meig., *Syst. Besch.*, iv, p. 35, *Hamm*, 1824; *Leptopus*, pt. Fallen, 1823; *Sciapus*, pt. Zeller, 1842; *Agonosoma*, (*alias Chrysosoma*) pt. Guérin, *Voy. de la Coquille*, 1830, p. 293.

*ansus*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, *Hamm*, 1830, p. 214.  
Hab. Java.

*vittatus*, id., *ibid.*, p. 217.

Hab. Java.

*crinicornis*, Wiedem., *Auss. Europ.*, p. 222.

Hab. Java.

*nitens*, id., *ibid.*, p. 226; *Dolichopus* id., Fabr., *Syst. Antl.*

Hab. India.

*flavicornis*, id., *ibid.*, p. 227.

Hab. Sumatra.

*apicalis*, id., *ibid.*, p. 227.

Hab. Sumatra.

*leucopogon*, Wiedem., *Anal. Entom.*, p. 40.

Hab. India.

*pusillus*, (*nomen bisectum*), Macq., *Dipt. Exot.*, ii, 2nd Pt. Paris, 1842, p. 117.

Hab. India.

*conicornis*, id., *ibid.*, *Suppl.*, 1846, p. 120.

Hab. Pondicherry, Sydney.

*elegans*, Walker, *Ins. Saunders, Dipt.*, i, London, 1856, p. 210.

Hab. India.

*cælestis*, id., *List Dipt. Ins. Brit. Mus.*, London, 1849, iii, p. 642.

Hab. India.

*cupido*, id., *ibid.*, p. 643.

Hab. India.

*setipes*, Bigot, *Ann. Soc. Ent. France*, 1890, p. 284.

Hab. Indian Archipelago.

*armillatus*, id., *ibid.*, p. 285.

Hab. Ceylon.

*appendiculatus*, id., *ibid.*, p. 286.

Hab. Burma.

*fuscopennatus*, id., *ibid.*, p. 287.

Hab. Borneo.

*alarus*, Walker, *Journ. Proc. Linn. Soc. London*, i, 1857, p. 15.

Hab. Mt. Ophir.

*robustus*, id., *ibid.*, p. 16.

Hab. Singapore.

*subnotatus*, id., *ibid.*

Hab. Mt. Ophir.

*posticus*, id., *ibid.*

Hab. Malacca.

*tenebrosus*, id., *ibid.*

Hab. Singapore, Borneo.

*allectans*, id., *ibid.*, p. 119, 1857.

Hab. Borneo.

*alliciens*, id., *ibid.*

Hab. Borneo.

*illiciens*, id., *ibid.*, p. 120.

Hab. Borneo.

*delectans*, id., *ibid.*

Hab. Borneo.

*proliciens*, id., *ibid.*

Hab. Borneo.

*prolectans*, id., *ibid.*

Hab. Borneo.

*collucens*, id., *ibid.*

Hab. Borneo.

*derelictus*, id., *ibid.*, p. 121.

Hab. Borneo.

*villipes*, Rondani, *Ann. Mus. Civ. Genova d. Stor. Nat.*, 1875, p. 445.

Hab. Sarawak.

*patellatus*, V. d. Wulp, *Sumatra Expedition*, p. 27.

Hab. Sumatra.

*obscuratus*, id., *Tijdschr. v. Entom.*, deel xxvii, p. 226.

Hab. Padang, Sumatra.

*slatus*, id., *ibid.*, p. 227.

Hab. Java.

#### Genus RHAPHIUM.

Meig., *Illig. Magaz.*, ii, 1803, p. 272; *Hydrochus*, Fallen, 1823; *Porphyrops*,  
pt. Meigen; *Xiphandrium*, pt. Loew, *Nou. Beitr. Dipt.*, 1857.

*dilatatum*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd pt., Hamm, 1830, p. 11.

Hab. China.

#### Genus CHRYSOTUS.

\* Meig., *Syst. Besch.*, iv, p. 40, 1824; *Dolichopus*, pt.

*rostratus*, J. Bigot, *Ann. Soc. Ent. France*, 1890, p. 295.

Hab. Ceylon.

*chinensis*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, p. 212, Hamm, 1830.

Hab. China.

Genus MESORHAGA.

Schiner, *Novar. Reise*, 1868, p. 217.

*torquata*, J. Bigot, *Ann. Soc. Ent. France*, 1890, p. 294.

Hab. Ceylon.

Genus DOLICHOPUS.

Latr., *Precis Caract. Gener.*, 1796; *Nemotelus*, pt. Panzer; *Satyra*, pt. Meig.

*fuscipennis*, Wiedem., *Analect. Entomol.*, p. 40.

Hab. India.

*nigra*, id., *ibid.*, p. 40.

Hab. India.

*electus*, Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 121.

Hab. Borneo.

*alligatus*, id., *ibid.*, p. 121.

Hab. Borneo.

*collectus*, id., *ibid.*, p. 121.

Hab. Borneo.

Genus ARGYRA.

Macq., *S. & Buff. Dipt.*, i, *Paris*, 1834, p. 456; Schiner, Rondani, Zetterst., id.; *Porphypops*, Meig. pt.

*spinipes*, Doleschall, *Naturk. Tijdschr. Nederl. Indië, Batavia*, 1856, p. 410.

Hab. Java.

Genus DIAPHORUS.

Meig., *Syst. Besch.*, iv, 1824, p. 32; *Dolichopus*, Fallen; *Nematoproctus*? Loew, *Neu. Beitr.*, 1857, p. 40.

*mandarinus*, Wiedem., *Ausser. Europ. Zweifl. Ins.*, ii pt., *Hamm*, 1830, p. 212.

Hab. China.

*delegatus*, Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 122.

Hab. Borneo.

*caesus*, Doleschall, *Naturk. Tijdschr. v. Nederl. Indië, Batavia*, new series, 1856, p. 409.

Hab. Java.

Genus PEODES.

Loew, *V. Neu. Beitr.*, 1857, p. 29.

*nicobarensis*, Schiner, *Novar. Reise*, 1868, p. 221.

Hab. Nicobar Islands.

## Family BOMBYLIDÆ.

J. Bigot, *adhuc. ined.*, 1891; Bombyliari, Latr., *Gen. Crust. et Ins.*, iv, p. 312, 1809; Bombyliari, Fallen, *Spec. Ent.*, 1810; Bombyliden, Leach, *Edinb. Encyclop.*, 1815; Bombylidae, Leach, *Sam. Comp.*, 1819; Bombyliera, Macq., *S. & Buff. Dipt.*, i, 1834; Bombylidae et Bombylina, Rondani, *Prodr.*, i, 1856, pp. 14, 33, 162; Bombylidae, Schiner, 1862; Anthracii, pt. Latr., *Gen. Crust. et Ins.*, iv, p. 309, 1809; Anthracini, pt. Fallen, *Sp. Ent.*, 1810; Anthracoides, pt. Leach, *Edinb. Encyclop.*, 1815; Anthracoides, id., *Sam. Comp.*, 1819; Anthraciens, pt. Macq., *S. & Buff. Dipt.*, i, 1834; Bombyliarii, Walkor, *List. Dipt. Ins. Brit. Museum*, 1849.

## Genus EXOPROSOPA.

Macq., *Dipt. Exot.*, ii, 1st Pt., Paris, 1840, p. 35; Anthrax, pt. Hyperalonis, p. 58, Heteralonis, pt., p. 51, Argyrospila, pt., Rondani, *Archiv. p. l. Zool. Modena*, 1860, p. 58, *Sic. Nat. p. l. Zoolog.*, p. 53, *Modena*, 1860, Trinaria, pt. Mulsant, 1852; Lithorhynchus, pt. Macq., *Dipt. Exot.*, ii, 1st Pt., p. 78, Paris, 1840.

pennipes, Macq., *Dipt. Exot.*, ii, 1st Pt., Paris, 1840, p. 47; Anthrax id., Wiedem., *Dipt. Exot.*, i, p. 129.  
Hab. Java.

sphinx, id., *ibid.*, p. 37; Bibio id., Fabr., *Mant. Ins.*, ii, p. 329.  
Hab. India.

bengalensis, id., *ibid.*, p. 49.  
Hab. Bengal.

javana, id., *ibid.*, p. 49.  
Hab. Java.

binotata, id., *ibid.*, 5th Suppl., 1855, p. 60.  
Hab. India.

favofasciata, id., *ibid.*, p. 70.  
Hab. China.

chrysolampis, Jaennicke, *Neu. Exot. Dipt.*, Frankfurt, 1867, p. 36.  
Hab. Java.

albicincta, Macq., *Dipt. Exot.*, ii, 1st Pt., Paris, 1840, p. 38.  
Hab. Shanghai.

brahma, Schiner, *Novar. Reise*, 1868, p. 118.  
Hab. Ceylon.

aurantiaca, Guérin, *Iconogr.*, Paris, 1829-38, p. 39.  
Hab. Bengal.

doryca, Senm Ost-Sacken, *Ann. Mus. Civ. Genova*, 1880, p. 433; Vontrimsacula, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1857, p. 399; Anthrax id., Boiduval, *Faun. d. l'Océanie. Voy. de l' Astrolabe.*, ii, p. 665; Pelops, Walkor, *Journl. Proceed. Linn. Soc., London*, iii, p. 90; Jaamicko, *Neu. Exot. Dipt.*, p. 27.  
Hab. Borneo, Amboina, Ternate, N. Guinea, Aru, Moluccas, Gilolo.

Genus *HYPERALONIA*.

- Rondani*, *Archiv. p. l. Zool. Modena*, 1863, p. 57; *Exoprosopa*, pt.  
*audouinii*, *Sensu Rondani*, id., p. 57; *Exoprosopa* id., *Macq., Dipt. Exot.*, ii,  
 1st Part., 1840, p. 36.  
*Hab. India.*
- fuscanipennis*, *Sensu id.*, *ibid.*, p. 57; *Exoprosopa* id., *Macq., Dipt. Exot., Suites du*  
*2nd Suppl.*, 1847, p. 33.  
*Hab. Java.*
- tantalus*, *Sensu id.*, *ibid.*, p. 453; *Anthrax* id., *Fabr., Ent. Syst.*, iv, p. 260.  
*Hab. Java.*
- cenomæus*, id., *ibid.*, p. 453.  
*Hab. Bornéo.*

Genus *ARGYROMEDA*.

- Schiner, Wien Entom. Monatschr.*, iv, 1860, p. 51; *Anthrax*, pt.
- semiscota*, *Sensu Ost. Sacken, Ann. Mus. Civ. Genova*, 1880, p. 432; *Anthrax* id.,  
*Walker, Journ. Proceed. Linn. Soc., London*, 1857, p. 118.  
*Hab. Bornéo.*
- distigma*, *Sensu Schiner, Novar. Reise*, 1868, p. 122; *Anthrax* id., *Wiedem., Ausser.*  
*Europ. Zweiflugs. Ins.*, 1st Part, *Hann.*, 1828, p. 309; *Sensu V. d. Wulp, Tijdschr.*  
*Ent.*, deel, xliii, *Anthrax argyropyga*, *Doltsch., Naturk. Tijdschr. v. Nederl. Indie,*  
*Batavia*, 1857, p. 401.  
*Hab. Amboina, Java.*
- melania*, *V. d. Wulp, Notes f. Leyden Museum*, Not. vii, 1885, p. 84.  
*Hab. Java.*

Genus *ANTHRAX*.

- Scopoli, Entom. Carniol.*, 1763, p. 358; *Nemotelus*, pt. *Degerer; Bibio, Rossi.*  
 pt.
- sphinx*, *Fabr., Ent. Syst.*, iv, p. 261.  
*Hab. India.*
- lar*, id., *ibid.*, p. 257.  
*Hab. Bengal.*
- bipunctata*, *Fabr., Syst. Antl.*, p. 118.  
*Hab. Tranquobar Madras Pr.*
- dia*, *Wiedem., Anal. Entom.*, p. 75  
*Hab. Tranquobar Madras Pr.*
- troglodyta*, *Sensu V. d. Wulp, Notes f. Leyden Mus.*, 1885, p. 83; *Anthrax hyalina*,  
*Wiedem., Dipt. Exot.*, i, p. 141; *Anthrax lucens*, *Walker, Ins. Saunders. Dipt.*, i,  
*London*, 1856, p. 180.  
*Hab. India, Java.*

*fulvula*, Wiedem., *Dipt. Exot.*, i, p. 148.

Hab. Java.

*absalon*, id., *Ausser. Europ. Zweifelh. Ins.*, 1st Part, Hamm, 1828, p. 817.

Hab. India.

*satyrus*, (*Bibio*) Fabr., *Mantissa Ins.*, ii, p. 320.

Hab. China.

*duvaucelii*, Macquart, *Dipt. Exot.*, ii, 1st part, p. 63.

Hab. Bengal.

*appendiculata*, id., *ibid.*, 5th Suppl., 1855, p. 74.

Hab. China.

*purpuraria*, Walker, *Ins. Saunders. Dipt.*, i, London, 1856, p. 169.

Hab. Java.

*semilucida*, id., *ibid.*, p. 170.

Hab. India.

*albida*, id., *ibid.*, p. 171.

Hab. India.

*auriplena*, id., *ibid.*, p. 171.

Hab. India.

*insulata*, id., *ibid.*, p. 172.

Hab. India.

*carbonaria*, id., *ibid.*, p. 173.

Hab. India.

*manifesta*, id., *ibid.*, p. 178.

Hab. India.

*clara*, id., *ibid.*, p. 179.

Hab. India.

*lucida*, id., *ibid.*, p. 179.

Hab. India.

*limpida*, id., *ibid.*, p. 179.

Hab. India.

*aperta*, id., *ibid.*, p. 180.

Hab. India.

*albo-fulva*, id., *ibid.*, p. 182.

Hab. India.

*instituta*, id., *ibid.*, p. 183.

Hab. India.

*referens*, id., *ibid.*, p. 189.

Hab. India.



*dives*, id., *List Dipt. Ins. Brit. Mus., London, 1849, ii, p. 240.*

Hab. Sylhet.

*bimacula*, id., *ibid.*, p. 254.

Hab. China.

*alexon*, id., *ibid.*, p. 246.

Hab. India.

*collaris*, id., *ibid.*, p. 247.

Hab. Madras.

*basifascia*, id., *ibid.*, p. 248.

Hab. Bengal.

*combinata*, id., *Trans. Ent. Soc., London, (2), iv, 1857, p. 143.*

Hab. China.

*degenera*, id., *Journ. Proceed. Linn. Soc., London, i, 1857, p. 15.*

Hab. Singapore.

*satellitica*, id., *ibid.*, i, 1857, p. 119.

Hab. Borneo, N. Ceram.

*carbo*, Rondani, *Ann. Mus. Civ. di Stor. Nat. Genova, 1875, p. 453.*

Hab. Sarawak.

*ruficollis*, Saunders, *Trans. Ent. Soc., London, iii, 1841 p. 59.*

Hab. India.

### GENUS BOMBYLIUS.

Lin., *Faun. Suec, 1761.*

*maculatus*, Fabr., *Syst. Anth.*, p. 803.

Hab. Tranquebar Madras Pr.

*orientalis*, Macq., *Dipt. Exot.*, ii, 1st Part, *Paris, 1840, p. 90.*

Hab. India.

*socius*, Walker, *Ins. Saunders. Dipt.*, i, *London, 1856, p. 201.*

Hab. India.

*ardens*, id., *List Dipt. Ins. Brit. Mus., London, 1849, ii, p. 284.*

Hab. India.

*tricolor*, Guérin, *Iconogr.*, *Paris, 1829-30, p. 538.*

Hab. India.

### GENUS COMASTES.

Ost.-Sack., *Western Dipt.*, 1877, p. 256; *Washington; Bombylius*, pt.

*pulchellus*, V. d. Wulp, (*G. Bombylius*), *Tijdschr. v. Entom.*, xxiii, p. 164.

Hab. Java.

Genus ANASTECHUS.

♂  
Ost.-Sack., *Western Dipt.*, Washington, 1877, p. 252; Bombylius, pt.  
longirostris, V. d. Wulp, *Notes f. Leyden Mus.*, 1885, p. 85.  
Hab. Himalayas.

Genus PHTHIRIA.

Meig., *Illig. Magaz.* ii, 1803, p. 268; Bombylius, pt. Mikan; Volucella, pt.  
Fabr.  
gracilis, Walker, *Ins. Saunders. Dipt.*, i, London, 1856, p. 194.  
Hab. India.

Genus TOXOPHORA.

Meig., *Illig. Magaz.*, ii, 1803, p. 270; Bombylius, pt. Fabr.  
javana, Wiedem., *Dipt. Exot.*, i, p. 179.  
Hab. Java.  
nilpa, Walker, *List Dipt. Ins. Brit. Museum, London*, ii, 1849, p. 298.  
Hab. China.

Genus SYSTROPUS.

Wiedem., *Nov. Dipter. Genera*, 1820.  
ophioneus, Westwood, *Trans. Ent. Soc., London*, 1876, p. 574.  
Hab. India.  
polistoides, id., *ibid.*, p. 575.  
Hab. Siam.  
tipuloides, id., *ibid.*, p. 576.  
Hab. Sulu.  
eumenoides, Westw. *Guerin. Mag. Zool.*, 1842, p. 4, pl. 90.  
Hab. India.

Family PIPUNCULIDÆ.

J. Bigot, *adhuc ined.*, 1891; Pipunculini, Zetterst., *Dipt. Scand.*, i, 1842;  
Pipunculidae, Schiner, 1862; Pipunculidæ, Rondani, *Prodr.*, i, p. 13,  
1856, et Pipunculina, *ibid.*, p. 139; Megacephali, Walker, *List Dipt.*  
*Ins. Brit. Mus., London*, 1849, iii, p. 639.

Genus PIPUNCULUS.

Latr., *Gen. Crust. Ins.*, iv, p. 232, 1809; Cephalops, Fallen; Microcera,  
Meig.; Cephalops (*olim*) Fallen.  
armatus, Thomson, *Eugenies Resa, Stockholm*, 1858-63, p. 513.  
Hab. China.  
abscessus, id., *ibid.*, p. 514.  
Hab. China.

## Family CONOPSIDI.

J. Bigot, *adhuc inæd.*, 1891; Conopsariæ, Latr., *Gen. Crust. et Ins.*, iv, p. 333, 1809; Conopsarii, id., *Hist. Nat.*, 1804; Conopsides, Leach, *Edinb. Encyclop.*, 1815; Conopica, Nitzsch, *German. Magaz. Entom.* 1818; Conopsariæ, Meig., 1824; Conopidæ, Leach, *Steph. Catal.*, 1829, id., *ibid.*, *Sam. Comp.*, 1819; Conopsariæ, Macq., *S. à Buff.*, ii, 1835; Conopsariæ, Walker, *List.*, *Dipt. Ins. Brit. Mus.*, London, 1849, p. 669, Conopidæ, Rondani, *Prodr.*, i, p. 11, 1856, et Conopina, *ibid.*, p. 66, (*olim* Conopinæ); Conopsidii (*olim*), J. Bigot; Conopidæ, Schin., 1862.

## Genus CONOPS.

Linn., *Faun. Suec.*, 1761; Brachyglossum, Leopoldius, Conopsides, Conopœjus, Conopilla, Sphixosoma, Spariglossum, Physocephala, pt. Rondani; Bombibia, Lioy, 1863.

*erythrocephala*, Fabr., *Syst. Antl.*, iv, p. 392.

Hab. India.

*testacea*, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 9.

Hab. Bengal.

*gigas*, id., *ibid.*, p. 10.

Hab. Java.

*pactyas*, Walker, *Ins. Saunders. Dipt.*, i, London, 1856, p. 255.

Hab. Java.

*javanica*, Dolosoh., *Naturk. Tijdschr. v. Nederl. Indie.*, Batavia, 1856, p. 409.

Hab. Djokjokarta.

*calopus*, J. Bigot, *Ann. Soc. Ent. France*, 1887, p. 33.

Hab. Pondicherry.

*tenellus*, J. Bigot, *Ann. S. Ent. France*, 1887, p. 35.

Hab. Ceylon.

*nubeculosus*, id., *ibid.*, p. 36.

Hab. Ceylon.

*annulosus*, id. *ibid.*, p. 36.

Hab. Islands of the Indian Archipelago.

## Family SYRPHIDI.

J. Bigot, *adhuc inæd.*, 1891; Syrphio, Latr., *Gen. Crust. et Ins.*, iv, p. 319, 1809; Syrphides, Leach, *Edinb. Encyclop.*, 1815; Syrphici, Fallen, *Disp. Dipter.*, 1817; Syrphidæ, Leach, *Sam. Comp.*, 1819; Syrphiot, Meig., *Syst. Besch.*; Syrphidæ, Macq., *S. à Buff. Dipt.*, i, p. 468, Paris, 1834; Syrphici, Walker, *List.* iii, p. 637, London, 1849; Syrphidæ, p. 11, et Syrphina, p. 46, Rondani, *Prodr.* i, 1856; Syrphidæ, Wiedem.; Syrphinæ, (*Olim*). Rondani; Syrphidæ, Schiner, 1862; Syrphidii (*olim*), J. Bigot.

Genus CERIA.

Fabr., *Entom. System.*, iv, p. 277; Conopa, pt. Schr.; Syrphus, pt. Panzer.;  
Sphiximorpha, pt., Rondani, *Prodr.*, i, 1856, p. 55; V. Loew, *N. Beitr.*,  
1852; Saunders, *Trans. 1845-47*, p. 63, Monog.

javana, Wiedem., *Analect. Entom.*, p. 32.  
Hab. Java.

eumenioides, Saunders, *Trans. Ent. Soc., London*, 1841-43, iii, p. 60.  
Hab. Bengal.

Genus SPHIXIMORPHA.

Rondani, *Prodr.*, i, 1856, p. 55; Ceria pt. Fabr.

anchorata, J. Bigot, *Ann. Soc. Ent. France*, 1883, p. 318.  
Hab. Sarawak.

Genus SPHIXEA.

Rondani, *Prodr.*, i, 1856, p. 46; Milesia, pt.

fulvipes, J. Bigot, *Ann. Soc. Ent. France*, 1883, p. 340.  
Hab. Java.

fuscicosta, id. *ibid.*, 1875, p. 469.  
Hab. Sarawak.

flavifacies, id. *ibid.*, 1875, p. 471.  
Hab. Sarawak.

Genus MILEZIA.

Latr., *Gen. Crust. et Ins.*, iv, p. 329, 1809; Syrphus pt. Fabr.; Eristalis, pt.  
Fabr. Sphixea, pt. and, Calliprobola, pt. Rond., *Prodr.*, i, 1856, p. 47.

reinwardtii, Wiedem., *Anal. Entom.*, p. 33.  
Hab. Java, Singaporo.

macularis, id. *ibid.*, p. 34.  
Hab. Java, Singaporo.

gigas, Macq., *Dipt. S. à Buff.*, i, Paris, 1834, p. 533.  
Hab. Java.

limbipennis, id., *Dipt. Exot. Suit. du 2nd Suppl.*, 1847, p. 42.  
Hab. Java.

meyeri, Jaenicko, *N. Exot. Dipt.*, Frankfurt, 1867, p. 95.  
Hab. Java.

vespoides, Walker, *Journl. Proceed. Linn. Soc., London*, 1857, p. 18.  
Hab. Singaporo.

Genus CHRYSOTOXUM.

- \* Meig., *Illig. Magaz.*, ii, 1803, p. 275; Conops, pt., Scopoli; Mulio, pt., Fabr., Fallon; Syrphus, pt., Panzer; Milesia, pt., Fabr.
- ba phyrus, Walker, *List Dipt. Ins. Brit. Mus., London*, iii, 1849, p. 542.  
Hab. Bengal.
- antiquum, id., *Ins. Saunders, Dipt.*, i, 1856, *London*, p. 218.  
Hab. India.
- indicum, id., *ibid.*, p. 218.  
Hab. India.

Genus MICRODON.

- Meig., *Illig. Magaz.*, ii, p. 275, 1803; Mulio, Stratiomys, pt. Panzer; Aphritis, Latr., *Genus. Crust. et Ins.*, iv, p. 329, 1809; id. Macq., *S. a Buff., Dipt.* i, Paris, 1834, p. 486.
- stilboides, Walker, *List Dipt. Ins. Brit. Mus., London*, 1849, iii, p. 538.  
Hab. India.
- sumatranus, V. d. Wulp, *Sumatra Exped.*, p. 29.  
Hab. Sumatra.
- apicalis, id., *ibid.*, p. 29.  
Hab. Sumatra.

Genus ASCIA.

- Meig., *Syst. Besch.*, 3rd pt., Hamm, 1822, p. 186.
- brachystoma, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Part, Hamm, 1830, p. 90.  
Hab. India.

Genus BACCIA.

- Fabr., *Syst. Antl.*, 1805, p. 199; Meig., Fall., Latr., Wiedem., Walker. Macq., Rondani; Syrphus, pt. Fabr.; Baca vol Bacha, Schiner, 1862.
- sapphirina, Wiedem., *Ausser. Europ. Zweifl. Ins.*, 2nd pt., Hamm, 1830, p. 98.  
Hab. India.
- vittata, ? (Wiedem) *nomen bisectum*, Macq., *Dipt. Exot.*, ii, 2nd Pt., 1842, p. 108.  
Hab. Java.
- maculata, Walker, *Ins. Saunder .. Dipt.*, i, London, 1856, p. 223.  
Hab. India.
- amphithoe, id., *List Dipt. Ins. Brit. Mus., London*, iii, 1849, p. 549.  
Hab. India.
- tripartita, id., *Journal. Proceed. Linn. Soc., London*, vii, 1864, p. 212; v. Schiner, *Novar. Reise.*, p. 344.  
Hab. Batchian; Nicobar Islands.

*pedicellata*, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1856, p. 411.

Hab. Java.

*gratiosa*, J. Bigot, *Ann. Soc. Ent. France*, 1883-84, p. 335.

Hab. Sarawak.

### Genus LYCASTRIS.

Walker, *Trans. Ent. Soc., London*, 1857, p. 155.

*albipes*, id. *ibid.*, p. 155.

Hab. India.

### Genus TIGRIDOMYIA.

J. Bigot, (*olim*, *Tigridomyia* vel. *Tigridiamyia*); J. Bigot, *Ann. Soc. Ent. France*, 1883, *Bullet. No. 13*, p. 348.

*pictipes*, id. *Ann. S. Ent. France*, p. 348, 1883-84.

Hab. Java.

### Genus ISCHYROSYPHUS.

J. Bigot, *Ann. Soc. Ent. France*, 1882, *Bullet. No. 6*, p. 68.

*sivæ*, id. *ibid.*, p. 78.

Hab. India.

*tigerinus*, id., *Ann. Soc. Ent. France*, 1885, p. 249.

Hab. India.

### Genus ANCYLOSYPHUS.

J. Bigot, *Ann. Soc. Ent. France*, 1882, *Bullet. No. 6*, p. 68.

*salviæ*, id. *ibid.*, *Syrphus* id., Fabr., *Ent. Syst.* iv, p. 306, (1794); *Sensu* Wiedem, *Ausser. Europ. Zweifl. Ins.*, ii, p. 122; *Sensu* Osten-Sacken, *Ann. Mus. Civ. Genova*, 1880, p. 438; *Syrphus ericetorum*, Fabr., *Ent. Syst.*, iv, p. 287; *Syrphus incisuralis*? Macquart, *Dipt. Exot.*, 5th Suppl., Paris, 1855, p. 94; *Didea macquarti*, Doleschall, *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1857, p. 408.

Hab. Java, Amboina, Ternate, Celebes, New Guinea, etc.

### Genus SIMOSYPHUS.

J. Bigot, *Ann. Soc. Ent. France*, 1882, *Bullet. No. 6*, p. 79.

*planifacies*, id. *ibid.*, p. 79; *Syrphus* id. Macq., *Dipt. Exot.*, *Suites du 2nd Suppl.*, 1847, p. 43.

Hab. Java.

### Genus EUMEROSYPHUS.

J. Bigot, *Ann. Soc. Ent. France*, 1883, 349.

*indicus*, (*olim* *indianus*); id. *ibid.*, p. 349.

Hab. India.

Genus ENDOIASIMYIA.

J. Bigot, *Ann. Soc. Ent. France*, 1883, *Bullet. No. 15*, p. 549.

*indiana*, id. *ibid.*, p. 549.

Hab. India.

Genus CARTOSYRPHUS.

J. Bigot, *Ann. Soc. Ent. France*, 1883-84, p. 230, 1st pt.

*pilipes*, id. *ibid.*, p. 551, 1st pt.

Hab. India.

Genus PRIOMERTS.

Macqart (et Servillo), *Suit. à Buff. Dipt.*, i, *Paris*, 1834, p. 511.

*fasciatus*, id. *ibid.*, p. 512.

Hab. India.

Genus SPHEGINA.

Meigen, *Syst. Besch.*, iii, *Hamm.*, 1822, p. 193; Milesius, pt., Fall; Syrphus, pt., Panzer.

*macropoda*, J. Bigot, *Ann. Soc. Ent. France*, 1883-84, p. 331.

Hab. Burma.

Genus MEGASPIS.

Macq., *Dipt. Exot.*, ii, 2nd part, *Paris*, 1842, p. 27; Eristalis pt. *Phytomyia*, Guerin, *Voy. Bellanger, Zool.*, p. 509; Syrphus, Fabr. pt.

*chrysopygus*, Sensu Macq., *Dipt. Exot.*, ii, 2nd Pt., 1842, p. 27; Eristalis id. Wied., *Ausser. Europ. Zweiflugs. Ins.*, 2nd Pt., *Hamm.*, 1830, p. 152; *Phytomyia*, id. Guerin (*loc. cit.*).

Hab. India, Sylhet, Java, etc.

*crassus*, id. *ibid.*, p. 28; Sensu Walker, *List. Dipt. Ins. Brit. Mus.*, London, 1849, iii, p. 631; Syrphus, id., Fabr., *Ent. Syst.*, iv, p. 231; *Syrphus megacephalus*, Fabr., *Ent. Syst.*, *Suppl.*, 561, 17.

Hab. Tranquebar.

*zonalis*, id. *ibid.*, 5th *Suppl.*, 1855, p. 86; *Syrphus* id. et, *zonatus*, Fabr., *Ent. Syst.*, iv, p. 294; Sensu V. d. Wulp, *Sumatra Exped.*, *Eristalis*, id., Fabr., *Syst. Antl.*, p. 242, et Wiedem, Sensu Ost.-Sacken, *Ann. Mus. Civ. d. Stor. Nat. Genova*, 1880, p. 441; *Eristalis flavofasciatus* Macq., *Dipt. Exot.*, 4th *Suppl.*, 1850, p. 136.

Hab. China, Java, Sumatra, India.

*errans*, Sensu V. d. Wulp *Fydschr. v. Entom.*, 1879-80, p. 170; *Eristalis* id., Fabr., *Ent. Syst.*, iv, p. 294; Sensu Ost.-Sack., (*loc. cit.*), *Erist.* *varipes*, Macq., *Dipt. Exot.*, ii, 2nd Pt., *Paris*, 1842, p. 46; *Eristalis macquarti*, Dolesch., *Naturk. Tijdschr. v. Nederland Indie, Batavia*, 1856, p. 410; *Eristalis amphicrates*, Walker, *List. Dipt. Ins. Brit. Mus.*, London, iii, 1849, p. 623.

Hab. India, Java, China.

Genus ERISTALIS.

Latr., *Gen. Crust. et Ins.*, iv, p. 323, 1809; Conopa, pt., Scopoli; Syrphus, pt., Fab., Zett.; Elophilus, pt., Latr; Axona, pt., Walker, *Journ. Proceed. Linn. Soc., London*, vii, 1861, p. 210; Eristalinus et Eristalomyia, pt., Rondani, *Prodr.*, ii, 1857, p. 40.

*cerealis*, Fabr., *Syst. Antl.*, p. 232.

Hab. China.

*proserpina*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd pt., Hamm, 1830, p. 157.

Hab. China.

*vestitus*, id. *ibid.*, p. 159.

Hab. Java.

*vilis*, id. *ibid.*, p. 161.

Hab. Java.

*quadrivittatus*, id. *ibid.*, p. 168, et *Zool. May.*

Hab. Bengal?

*bengalensis*, id. *ibid.*, et, *Zool. May.*, iii, p. 167.

Hab. Bengal.

*sinensis*, id., *Anal. Entom.*, p. 37.

Hab. China.

*cognatus*, id. *ibid.*, p. 37.

Hab. Tranquebar Madras Pr.

*orientalis*, id. *ibid.*, p. 38.

Hab. Java.

*niger*, id. *ibid.*, p. 38.

Hab. Java, Bengal.

*arvorum*, Ssensu Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, Hamm, 1830, p. 184; Syrphus id., Fabr., *Ent. Syst.*, iv, p. 286.

Hab. Bengal, Java, China.

*quadrilineatus*, Ssensu Wiedem., id. *ibid.*, p. 185; Syrphus, id. Fabr., *Ent. Syst.*, iv, p. 289.

Hab. Tranquebar Madras Pr., Bengal.

*obliquus*, id., *Anal. Entom.*, p. 38.

Hab. Bengal

*quinquestriatus*, Ssensu id., *Ausser. Europ. Zweifl. Ins.*, ii, Hamm, 1830, p. 187; Syrphus id., Fabr., *Ent. Syst.*, iv, p. 289.

Hab. India.

*lætus*, id. *ibid.*, p. 192.

Hab. China.

*sugens*, id. *ibid.*, p. 193.

Hab. China.



*javanus*, Macq., *Dipt. Esot.*, ii, 2nd Pt., Paris, 1842, p. 32.

Hab. Java.

*dentipes*, id. *ibid.*, p. 37.

Hab. Java.

*vinotorum*, Fabr., *Ent. Syst., Suppl.*, p. 562, et Macq., *Dipt. Esot.*, ii, 2nd Pt., Paris, 1842, p. 41.

Hab. Bengal ? South America ?

*argyrocephalus*, Macq., *Dipt. Esot.*, ii, 2nd Pt., Paris, 1842, p. 45.

Hab. India.

*pallinervis*, id. *ibid.*, p. 46.

Hab. Bengal.

*latus*, id. *ibid.*, p. 35.

Hab. India.

*quadristriatus*, id. *ibid.*, *Suppl.*, 1846, p. 127.

Hab. India.

*tomentosus*, id. *ibid.*, *Suites du 2e 2nd Suppl.*, 1847, p. 39.

Hab. Java.

*violaceus*, id. *ibid.*, p. 40.

Hab. Java.

*tarsalis*, id. *ibid.*, *5th Suppl.*, p. 87.

Hab. China.

*exterus*, Walker, *Ins. Saunders. Dipt.*, i, London, 1856, p. 248.

Hab. India.

*multifarius*, id. *ibid.*, p. 248.

Hab. India, Java.

*solitus*, id., *List Dipt. Ins. Brit. Mus.*, iii, London, 1849, p. 619.

Hab. Nepal.

*seepus*, id. *ibid.*, p. 625.

Hab. China.

*antidotus*, id. *ibid.*, p. 626.

Hab. China.

*andremou*, id. *ibid.*, p. 627.

Hab. Sylhet.

*asymnus*, id. *ibid.*, p. 630.

Hab. India.

*chaleopygus*, Ssensu Ost.-Sacken, *Ann. Mus. Civ. d. Stor. Nat. Genova*, 1880, p. 440,

*Axona volucelloides*, Walker, *Journ. Proceed. Linn. Soc.*, London, vii, p. 212, and,

*Eristalis maxima*, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1887, p. 405.

Hab. Manilla, Amboina.

*singularis*, Walker, *Journ. Proceed. Linn. Soc. London*, iii, 1857, p. 17.

Hab. Singapore.

*nitidus*, V. d. Wulp, *Compt. Rendus, Soc. Ent. d. Belgique*, 1884, p. 291.

Hab. Java.

*transpositus*, Walker., *Trans. Ent. Soc., London*, v, 1860, p. 289.

Hab. Brumah.

*curvipes*, Schiner, *Novara. Reise*, 1868, p. 363.

Hab. Ceylon.

*quinquelineatus*, Fabr., *Spec. Ins.*, ii, p. 425, *Sensu* Schiner, *Novar. Reise*, 1868, p. 364. *E. quinquefasciatus*, Loew, *Faun. Sudafrica*, i, p. 396, (324).

Hab. Ceylon, South Africa?

*ursinus*, Jaenicko, *N. Exot. Dipt.*, Frankfurt, 1867, p. 93.

Hab. Java.

*ventralis*, Thomson, *Fregatt. Eugenie's Rosa, Stockholm*, 1858-68, p. 489.

Hab. China.

*barbatus*, J. Bigot, *Ann. Soc. Ent. France*, x, 1880, p. 214.

Hab. India.

*ursinus*, (*nom. bisectum*), id. *ibid.*, p. 215.

Hab. India.

*albibasis*, id. *ibid.*, p. 215.

Hab. India.

#### Genus ERISTALONYIA.

Rondani, *Prodr.*, ii, 1857, p. 40; *Eristalis*, pt.

*orientalis*, Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 421.

Hab. Borneo.

*paria*, J. Bigot, *Ann. Soc. Ent. France*, x, 1880, p. 218.

Hab. India.

*picta*, id. *ibid.*, p. 219.

Hab. India.

*fo*, id. *ibid.*, p. 220.

Hab. Amoy.

#### Genus MERODON.

Meig., *Illig. Magaz.*, ii, 1803, p. 274; *Syrphus* pt. Milesia, pt. Latr., Fabr.

*albifasciatus*, Macq., *Dipt. Exot.*, ii, 2nd Pt. Paris, 1842, p. 71.

Hab. India.

*varicolor*, Walker, *Journal. Proceed. Linn. Soc., London*, 1857, p. 122.

Hab. Sarawak.

Genus TROPIDIA.

Meig., *Syst. Besch.*, iii, *Hamm*, 1822, p. 346; *Eristalis*, pt. *Fallen*.

*sinensis*, Macq., *Dipt. Exot.*, 5th Suppl., *Paris*, 1855, p. 91.  
Hab. China.

Genus IMATISMA.

Macq., *Dipt. Exot.*, ii, 2nd Pt., *Paris*, 1842, p. 68; Senu J. Bigot, *Zetterstedtin*, *Roudani*.

*orientalis*, Macq., id. *ibid.*, p. 69.  
Hab. India.

Genus HELOPHILUS.

Meig., *Illig. Mag.*, ii, 1803, p. 274; *Conops*, pt. *Scopoli*; *Syrphus*, pt. *Panzer*,  
*Eristalis*, *Fabr.*, *Wied.*; *Elophilus*, *Latr.*, *Rhingee*, pt. *Fabr.*

*bengalensis*, Senu Macq., *Dipt. Exot.*, ii, 2nd Pt., *Paris*, 1842, p. 63; *Eristalis*, id  
*Wiedem.*, *Zool. Magazin*, iii, p. 16.  
Hab. Bengal.

*notabilis*, id. *ibid.*, p. 63.  
Hab. Java, Sumatra?

*insignis*, *Walker*, *Journl. Proc. Linn. Soc., London*, 1857, p. 17.  
Hab. Singapore.

*insignis*, (nom. *bislectum*), *Doltschal*, *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1857,  
p. 409.  
Hab. Java.

*philipes*, id. *ibid.*, p. 410.  
Hab. Java, Amboina.

Genus SENOGASTER.

Macq., *S. à Buif. Dipt.*, i, *Paris*, 1834, p. 519.

*lutescens*, *Doltsch.*, *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1856, p. 410.  
Hab. Java.

Genus FUMERUS.

Meig., *Syst. Besch.*, iii, *Hamm*, 1822, p. 202; *Syrphus*, pt. *Panzer*; *Eristalis*,  
pt. *Fabr.*; *Meloea*, pt. *Latr.*

*macrocerus*, *Wiedem.*, *Ausser. Europ. Zweiflug. Ins.*, ii, *Hamm*, 1830, p. 113.  
Hab. China.

*aurifrons*, id. *ibid.*, p. 114.  
Hab. India.

*splendens*, id. *ibid.*, p. 114.

Hab. India.

*albifrons*, Walker, *Ins. Saunders, Dipt.*, i, London, 1856, p. 224.

Hab. India.

*nicobarensis*, Schiner, *Novar. Reise.*, 1868, p. 368.

Hab. Nicobar Islands.

### Genus SYRITTA.

St. Farg. Servill, *Encyclop. Method.*, x, 1825, p. 808; Conopa, pt. Scopoli;  
Syrphus, pt. Fallen; Milesia, pt. Fabr. Latr.; Xylota, pt. Meig. West-  
wood; Coprina, pt. Zetterst.

*rufifacies*, J. Bigot, *Ann. Soc. Ent. France*, 1883-84, p. 538.

Hab. Pondicherry.

*orientalis*, Macq., *Dipt. Exot.*, ii, 2nd Pt., Paris, 1842, p. 76.

Hab. Pondicherry.

### Genus XYLOTA.

Meig., *Syst. Besch.*, iii, *Hamm*, 1822, p. 211; Syrphus, pt. Paaz.; Milesia,  
pt. Fall. Latr. Micramptoma, Westw.; Helophilus, pt. Meig. (*olim*),  
Eumerus, id. (*olim*); Microdon, Thoreau, pt. Fabr.; Eristalis, pt. Fallen;  
Xyloteja, pt. Rondani, *Prodr.*

*calopus*, J. Bigot, *Ann. Soc. Ent. France*, 1883-84, p. 543.

Hab. Java.

*indica*, Wiedem., *Anal. Entom.*, p. 33; Synon., Eumerus, id. (*olim*).

Hab. India.

*equalis*, Walker, *Ins. Saunders. Dipt.*, London, i, 1856, p. 226.

Hab. India.

*aethusa*, id., *List. Dipt. Ins. Brit. Mus.*, London, Pt. iii, 1849, p. 559.

Hab. India.

*conformis*, id., *Journl. Proceed. Linn. Soc.*, London, 1857, p. 18.

Hab. Singapore.

*cuprina*, J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 247.

Hab. India.

*nigroaenescens*, Rondani, *Ann. Mus. Civ. d. Stor. Nat. Genova*, 1875, p. 422.

Hab. Borneo.

### Genus GRAPTOMYZA.

Wiedem., *Ausser. Europ. Zweifl. Ins.*, 2nd pt., *Hamm*, 1830, p. 206.

*ventralis*, Wiedem., *ibid.*, p. 207.

Hab. Java.

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*longirostris*, id. *ibid.*, p. 208.

Hab. Java.

*interrupta*, id. *ibid.*, p. 209.

Hab. Java.

*brevirostris*, id. *ibid.*, p. 209.

Hab. Java, Nicobar Islands.

Genus BARTTEROCERA.

Walker, *Journl. Proceed. Linn. Soc., London*, 1857, p. 123; *Graptomyza*, pt.

*incolusa*, Walker, id. *ibid.*, p. 123.

Hab. Borneo.

Genus CITIBENA.

Walker, *Journl. Proceed. Linn. Soc., London*, 1857, p. 124.

*aurata*, Walker, *ibid.*, p. 124.

Hab. Borneo.

Genus VOLUCELLA.

Geoffroy, *Hist. Ins. des Environs d. Paris*, ii, 1764; *Conops*, pt. Scopoli  
Syrphus, pt. Fabr., Fallon; *Coenogaster*, Dumeril, 1801; *Ornidia*, pt.  
St. Fargean.

*peleterii*, Macq., *S. à Buff. Dipt.*, i, *Paris*, 1834, p. 495.

Hab. Java.

*opalina*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 203.

Hab. Bengal.

*trifasciata*, id. *ibid.*, p. 196.

Hab. Java.

*nubeculosa*, J. Bigot, *Ann. Soc. Ent. France*, 1875, p. 474.

Hab. China.

*aurata*, Macq., *S. à Buff.*, i, *Paris*, 1834, p. 494.

Hab. Java.

*obesa*, (G. *Ornidia*, St. Farg.), Fabr., *Syst. Ent.*, p. 763.

Hab. Inter Tropica ferè nndique.

Genus TEMNOCERA.

St. Fargean, Secvillo, *Encyclop. Method.*, x, 1805, p. 787; *Volucella*, pt.  
Wiedem.

*violacea*, Macq., *S. à Buff. Dipt.*, i, *Paris*, 1834, p. 495; *Sensu Macq.*, *Valucella*  
*mutata*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, *Hamm*, 1830, p. 198.  
Hab. China.

## Genus LASIOPHTHICUS.

Rondani, *Prodr.*, i, 1856, p. 51; Syrphus, pt.; Catabomba! Ost.-Sacken, *Western Dipt.*, Washington, 1877, p. 325.

annamites, J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 250.  
Hab. Cochinchina.

## Genus PARAGUS.

Latr., *Gen. Crust. et Ins.*, iv, p. 326, 1809; Malio, pt. Fabr; Syrphus, pt. Panzer; Pipiza, pt. Fallén.

serratus, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, i, Hamm, 1830, p. 88; Sensu Wied. Malio, id. Fabr., *Syst. Antl.*, p. 186.  
Hab. Tranquebar, Ceylon.

politus, id. *ibid.*, p. 89.  
Hab. China.

crenulatus, Thomson, *Fregatt. Eugenes Resa, Stockholm*, 1858-68, p. 503.  
Hab. China.

## Genus SYRPHUS.

Fabr., *Syst. Ent.*, 1775; Musca, pt. Linn.: Scœva, Fabr., Fall., Panzer, Zetterst.; Leucozona, pt. Schiner, *Wien. Entom. Monatschr.*, vi, 1860, p. 214; Eriozona, pt. *ibid.*, p. 214; Spatigaster, or Spazigaster, pt. Rondani, *Rev. Entomol.*, 1843; Pyrophœna, pt. Schiner, *Wien. Entom. Monatschr.*, 1860, p. 213; Platycheirus, pt. St. Farg. Serville, *Encycl. Method.*, x, 1825, p. 513; Melanostoma, pt. Schiner, *Wien. Entom. Monatschr.*, iv, 1860, p. 213; Ischyrosyrphus, Ancylosyrphus, Simosyrphus pt. J. Bigot, *Ann. Soc. Ent. France, Bullet.*, 1882, pp. 68, 69.

œgrotus, Sensu Wiedem., *Ausser. Europ. Zweiflug. Ins.*, i, Hamm, 1830, p. 118 Synon, Eristalis, id. Fabr., *Syst. Antl.*, p. 243; Sensu. Osten.-Sacken, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1880, p. 437, Didea Ellenriederi, Dolosch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1857, p. 407, Syrphus fascipennis, Macq., *S. à Buff. Dipt.*, i, Paris, 1834, p. 537, et, Syrphus infirmus, Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 423; Sensu. Macq., *Dipt. Exot.*, ii, 2nd Pt., Paris, 1842, p. 88.  
Hab. China, Borneo, Ternate, Sumatra, Java, India, N. Cerani.

trilimbatus, J. Bigot, *Ann. Soc. Ent. France*, 1884, p. 86.  
Hab. India.

erythropygus, id. *ibid.*, p. 87.  
Hab. India.

nectarinus, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, i, Hamm, 1830, p. 128; Sensu Osten.-Sacken, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1880, p. 438, Syrphus alternans, Macq., *Dipt. Exot.*, ii, 2nd Pt., Paris, 1842, p. 89, et, triligatus, Walker, *Journ. Proceed. Linn. Soc., London*, i, p. 19; Sensu. V. d. Wulp, *Sumatra Exped.*, p. 83, balteatus, de Geer, Meig., Macq., Zetterst., Alternata, Schrank, Nectarinus, Fabr., Nectarinus, Fb. Wied.  
Hab. China, Ternate, Java, Sumatra, India et Europa.

*striatus*, V. d. Wulp, *Sumatra Exped.*, p. 32.

Hab. Sumatra.

*confrater*, Wiedem, *Ausser. Europ. Zweiflug. Ins.*, ii, *Hamm*, 1830, p. 120.

Hab. China.

*neglectus*, id. *ibid.*, p. 134.

Hab. Borneo, (Sensu Rondani).

*corollæ*, (Fabr. Europa) Wied. *ibid.*, p. 121.

Hab. China; Europe.

*lunatus*, Wied., *ibid.*, p. 121.

Hab. China.

*serarius*, id. *ibid.*, p. 128.

Hab. China.

*viridaureus*, id. *Anal. Entom.* p. 35, p. 137.

Hab. Java.

*javanus*, id., *Analect. Entom.*, p. 34.

Hab. Java.

*scutellaris*, (G. Scova), Fabr., *Syst. Anth.*, p. 252.

Hab. Tranquebar.

*coromandelensis*, Macq., *Dipt. Exot.*, ii, 2nd Pt., *Paris*, 1842, p. 89

Hab. Coromandel.

*assimilis*, id. *ibid.*, *Suppl.* 1846, p. 135.

Hab. India.

*rufofasciatus*, id. *ibid.*, *4th Suppl.*, 1850, p. 149.

Hab. Java.

*consimilis*, id. *ibid.*, p. 150.

Hab. Java.

*mundus*, Walker, *Ins. Saunders, Dipt.*, *London*, 1856, i, p. 230.

Hab. India.

*cranapes*, id. *ibid.*, p. 231.

Hab. India.

*orsua*, id. *ibid.*, p. 231.

Hab. India.

*opimus*, id. *ibid.*, p. 232.

Hab. India.

*pedius*, id. *ibid.*, p. 234.

Hab. India.

*cothonea*, id. *ibid.*, p. 235.

Hab. India.

**pleuralis**, Thomson, *Fregat. Eugenies Rasa*, Stockholm, 1858-68, p. 497.

Hab. China.

**heterogaster**, id. *ibid.*, p. 498.

Hab. China.

**macropterus**, id. *ibid.*, p. 498.

Hab. China.

**divertens**, Walker, *Journl. Proceed. Linn. Soc., London*, 1857, p. 124.

Hab. Sarawak.

**cyathifer**, id. *ibid.*, p. 125.

Hab. Sarawak.

**consequens**, id., *ibid.*, 1857, p. 18.

Hab. Singapore.

**duplex**, id. *ibid.*, p. 18.

Hab. Singapore.

**splendens**, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1856, p. 410.

Hab. Java.

#### Genus MELANOSTOMA.

Schiner, *Wien. Ent. Monatschr.*, iv, 1860, p. 213; Syrphus, pt.

**univittata**, Sensu V. d. Wulp, V. d. Wulp, *Sumatra Exped.*, p. 33; Syrphus, id.

Wiedem., *Anal. Entom.*, p. 36.

Hab. India.

**orientalis**, Ost.-Sacken, *Ann. Mus. Civ. d. Stor. Nat. d. Genova*, 1880, p. 437; Sensu

Ost.-Sacken, Syrphus, id., Wiedem., *Anal. Entom.*, p. 36.

Hab. India.

#### Genus SPHEROPHORIA.

St. Fargeau, Serville, *Encycl. Method.*, 1825; Synon. Melithreptus, Loew.,

*Isis.*, 1840, p. 573; Allograpta, pt. Ost.-Sacken, *Bullet. Buffalo. Soc.*,

1876; Mesogramma, vel Mesograpta, pt. Loew, *Dipt. Amer. Septentr.*

*Indig. Centur.*, ii et vi.

**indiana**, J. Bigot, *Ann. Soc. Ent. France*, 1884, p. 99.

Hab. India.

**bengalensis**, Macq., *D. Exot.*, ii, 2nd Pt., Paris, 1842, p. 104.

\* Hab. India.

#### Family CESTRIDI.

J. Bigot, *adhuc ined.*, 1891; Cestrides, Leach, *Edinb. Encycl.*, 1815; Cestri-

des, et, Cestridæ, Leach, 1817-19; Cestracides, Meig., *Syst. Besch.*, iv,



*Hamm*, 1824; *Cestridæ*, Rob. Desvoidy, *Myodaires*, 1830; *Hæmatomyzæ*, Fallen. *Cestrides*, Macq., *S. d Buff. Dipt.*, 1835; *Cestridæ*, Schiner, *Cestrina*, *Hypodermina*, Rondani, *Prodr.*, i, 1856, p. 19; *Cestridii*, J. Bigot, (*olim*), *Oestrident*, Brauer, 1863, *Verhandl. K. K. z. b. Gesellsch. Wien*.

### Genus GASTROPHILUS.

Leach., *Eprobosc. Ins. Werner. Soc.*, 1817; *Gastrus*, pt. Meig., 1824; *Cestrus*, pt. Latr.

*bengalensis*, Brauer. Senu Brauer. *Gastrophilus Equi*, Fab., Macq., *Dipt. Esot.*, ii *Paris*, 1843, p. 25.

Hab. Bengal.

### Genus THEROBIA.

Brauer, *Verh. K. K. z. b. Gesellsch. Wien*, 1862, p. 1231; *Trypoderma* pt. Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, *Hamm*, 1830, p. 256.

*abdominalis*, Brauer, (*loc. cit.*), p. 1231; Synon., *Trypoderma*, id. Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, *Hamm*, 1830, p. 260.

Hab. Bengal.

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### Circulus CALYPTERICTI.

J. Bigot, *adhuc inedit.* 1891.

### Family MYOPICTE.

J. Bigot, *adhuc inedit.* 1891.

### Genus MYOPA.

Fabr., *Syst. Entom.*, 1775, p. 793. *Conops*, pt. (auctor) *Phorosia*, *Myopella*, id., *Purpurellis* id., *Gaustellia*, id., *Myopina*, id., *Tairmairia*, id., *Lonchopalpus*, id., *Pictina*, id., pt. Rob. Desvoidy, *Des Myopides*, 1859 *Gomrhynchus*, Rondani *Prodr.* i, p. 53, 1856. *Dalmannia*, pt. Rob. Desv. *Myod.* 1830 p. 248, *Sicus*, pt., Latr. *Proc.* i, *Caract. Ins.* 1803.

*cineta*, Fabr. *Syst. Antl.*, p. 181.

Hab. India.

## Family PHASIADÆ.

J. Bigot, *adhuc inedit.* 1891.

Phasianæ, Rob. Desv. *Myod.*, 1830, pp. 25, 280, Westw. Meig. *Rhysomyæ*,  
Fallen Phasiarise, Zetterst., *Dipt. Scandin.*, 1841. Phasidæ, J. Bigot,  
(olim) *Gastrodeæ*, Rob. Desv. *loc. cit.* p. 235, *Gymnolomæ*, pt., Macq.,  
*S. à Buff.*, *Dipt.*, ii, 1835, p. 187, Paris. Phasinæ, Schin., *Faun. Austriaca*,  
d. *Flieg.*, ii, p. 71, 1862, Phasina, Rond., *Prodr.* ii, pp. 22, 80, 1856.

## Genus GYMOSOMA.

Meig., *Illig. Magaz.*, ii, pp. 278, 1803, Tachina, pt., Latr. Meig. *Ocyphro*,  
pt., Fabr.

indica, Walker, *Insect. Saunders.* *Dipt.*, i, p. 257, London, 1856.

Hab. India.

## Genus PHASIA.

Latr., *Nouv. Diet. Hist. Nat.*, 1804; Thereva, pt., Meig. (olim).

indica, Walker, *Insect. Saunders.*, *Dipt.*, p. 259, London, 1856.

Hab. India.

## Family TACHINIDÆ.

J. Bigot, *adhuc. inedit.* 1891 *Creophilæ* Latr., *Fam. Nat. Calypteratæ*,  
pp. 21, 25 *Tachinarise*, p. 185, *Zoobius*, p. 25, *Entomobius*, p. 26,  
pt., Rob. Desv., *Myod.*, 1830, *Tachinarise*, *Ocypteratæ*, pt., Macq., *S. à*  
*Buff.* *Dipt.*, ii, pp. 59, 179, Paris, 1835; *Tachinaridæ*, J. Bigot, (olim)  
\* *Tachinina*, Schiner, *Faun. Austr. d. Flieg.*, i, 1862, p. 423; *Tachinina*,  
Rondani, *Prodr.*, i, p. 59, 1856.

## Genus JURINIA.

Rob. Desvoidy, *Myod.*, 1830, p. 34; *Synon.*, *Jurinea*, (auctor).

indica, id., *ibid.*, p. 36.

Hab. India.

## Genus GONIA.

Meig., *Illig. Magaz.*, ii, p. 280, 1803; *Reaumuria*, p. 70, *Rhodia*, p. 74,  
*Spallanzania*, p. 78, *Peleterin*, p. 40, pt., Rob. Desv., *Myod.*, 1830;  
*Isomera*, pt. id., *Ann. Soc. Ent., France*, 1851, p. 315; *Tachina*, pt.,  
Fall. (et auctor) *Duvancelia*? Rob. Desv. *Myod.*, 1830, p. 227.

javanica, Rob. Desv., (*Peleterin* id.) *Myod.*, 1830, p. 40.

Hab. Java.

atra, id., (*Rhodia*, id.) *ibid.*, p. 78.

Hab. Batavia, Cape of Good Hope (*Secundum*, Wied.)

bicincta, id., (*Duvancelia*, id.) *ibid.*, p. 328.

Hab. India.

*javana*, Macq., *Dipt. Exot. Suit du 2nd Suppl.*, Paris, 1847, p. 43.

Hab. Java.

*javana*, (nom. bisectum), id., *ibid.*, 4th Suppl., Paris, 1850, p. 178.

Hab. Java.

*rufitibialis*, id., *ibid.*, p. 178.

Hab. Pondicherry.

*indica*, Branner., (G. Trixomorpha), p. 163; Synon., *Gonia id*, Walker, *Ins. Saunders. Dipt.*, i, London, 1856, p. 305.

Hab. India.

\* *costroides*, Walker, *Trans. Ent. Soc., London*, i, 1857, p. 13.

Hab. India.

*minuta*, V. d. Wulp, *Sumatra Exped.*, p. 35.

Hab. Sumatra.

#### Genus ECHINOMYIA.

Dnmeril, *Zool. Anat.*, 1806; Tachina, pt. Meig., *Illig. Magaz.*, 1803, p. 280, Fabricia, p. 42, Faurellia, p. 41, Peleteria, p. 39, Servillia, p. 49, Rob. Desv., *Myod.*, 1830.

*rufo-analis*, Macq., *Dipt. Exot., 4th Suppl.*, Paris, 1850, p. 169.

Hab. India.

*tepons*, Walker, *List. Dipt. Ins. Brit. Mus., London*, iii, 1849, p. 723.

Hab. Sylhet.

*sacotala*, id. *ibid.*, p. 728.

Hab. Nepal.

*javana*, V. d. Wulp, *Tijdschr. v. Entom.*, xxiii, p. 171; Synon. *Tachina*, id., *Wiedem. Zool. Magaz.*, iii, p. 24.

Hab. Java, Sumatra.

*platymesa*, Walker, *Trans. Ent. Soc., London*, 1857, p. 7.

Hab. China.

*brevipennis*, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 19.

Hab. Mount Ophir, Malacca.

*lithanthrax*, Wiedem., (*Tachina*, id.), *Ausser, Europ. Zweiflug. Ins.*, 2nd Part, *Hamm*, 1830, p. 283.

Hab. Java.

*varia*, Fabr. (*Musca id.*), *Ent. Syst.*, iv, p. 327.

Hab. India.

*flavopilosa*, J. Bigot, *Ann. Soc. Ent. France*, 1888, p. 80.

Hab. Java.

**Genus LATREILLIA.**

**Rob. Desv.,** *Myod*, 1830, p. 104; *Tachina*, etc. (auctor.) pt.

**psamathe**, Walker, (*Tachina*, id.) *List. Dipt. Ins. Brit. Mus.*, London, 1849, 4th Pt., p. 765.

Hab. Madras.

**Genus MEIGENIA.**

**Rob. Desv.,** *Myod*, 1830, p. 198.

**ciliata**, V. d. Wulp, *Sumatra Exped.*, p. 38.

Hab. Sumatra.

**latestriata**, id. *ibid.*, p. 39.

Hab. Sumatra.

**Genus MASICERA.**

**Macq., S. à Buff.,** *Dipt.*, ii, Paris 1835, p. 118; *Tachina*, pt. Phryxe, p. 158, *Carnia*, p. 176, *Lydella*, p. 112, pt. **Rob. Desv.,** *Myod.*, 1830, *Blepharipa*, p. 71, *Ceromasia*, p. 71, pt. **Rondani,** *Prodr.*, i, p. 71, 1856.

**tenuisetosa**, Macq., *Dipt. Exot.*, *Suit. du 2nd Suppl.*, Paris, 1847, p. 46.

Hab. Java.

**niveiceps**, id. *ibid.*, 4th *Suppl.*, 1850, p. 191.

Hab. Java.

**cillipes**, V. d. Wulp, *Sumatra Exped.*, p. 36; *Synon. Tachina*, id., Macq., *Dipt. Exot.*, ii, 3rd Pt., p. 62, 1843.

Hab. India, Sumatra.

**vicaria**, Walker, *Journl. Proceed. Linn. Soc.*, London, i, 1857, p. 20.

Hab. Singapore.

**incivica**, id., *Trans. Ent. Soc.*, London, 1857, p. 38.

Hab. India.

**albescens**, id. *ibid.*, p. 11.

Hab. India.

**rubriventris**, V. d. Wulp, *Sumatra Exped.*, p. 37.

Hab. Sumatra.

**elongata**, id. *ibid.*, p. 37.

Hab. Sumatra.

**longiseta**, id. *ibid.*, p. 38.

Hab. Sumatra.

**Genus NEMORÆA.**

**Rob. Desv.,** *Myod* 1830, p. 71; *Tachina*, pt. (auctor), *Ernestia*, p. 60, *Frusta*, p. 62, *Mericia*, p. 64, *Erigone*, p. 65, *Panzeria*, p. 68, *Meriania*, p. 69,

Winthemia, p. 173, pt., Rob. Desv. loc. cit., Platychoira, p. 64, Chatolyga, p. 66, Chetina, p. 65, Nemorilla, p. 66, pt. Rond. Prodr., i, 1856.

bicolor, Macq., *Dipt. Exot.*, 4th Suppl., Paris, 1850, p. 182.  
Hab. Java.

### Genus PHOROCERA.

Rob. Desv., *Myod.*, 1830, p. 131; Tachina pt. (auctor.), Doria, pt., Meig., *System Besch.*, vii, Hamm, 1838, p. 263; Blondelia, p. 122, Pales, p. 154, Medina, p. 138, Rhynomya, p. 123, Latreillia, p. 104, pt., Rob. Desv. loc. cit., Metopia, Lydella, pt. Macq., *S. à Buff. Dipt.*, ii, p. 121 et 132, 1835; Porichota, p. 67, (alias Polycheta) Chetogona, p. 68, Locanipa, p. 156, (v. 3, 1859), Machareon, p. 159, (vol. 3, 1859), Bothria, p. 68, Campylocheta, p. 169, iii, 1859; Istocheta, p. 171, iii, 1859, pt. Rondani, *Prodr.*, i, 1856 et iii, 1859.

javana, Macq., *Dipt. Exot.*, 4th Suppl., Paris, 1850, p. 197.  
Hab. Java.

hyalipennis, id. ibid., p. 197.  
Hab. Java.

nebina, Walker., *List Dipt. Ins. Brit. Mus.*, London, iii, 1849, p. 772.  
Hab. Bengal.

### Genus DEGEERIA.

Meig., *Syst. Besch.*, vii, p. 249, Hamm, 1838; Tachina, pt., p. 139, Metopia, pt., p. 132, Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, Medina, pt., Rob. Desv., *Myod.*, 1830, p. 138.

albipes, Macq., *Dipt. Exot.*, 4th Suppl., Paris, 1850, p. 202.  
Hab. Java.

### Genus BLEPHARIBEZA.

Macq., *Dipt. Exot.*, ii, 3rd pt., 1843, p. 54; Blepharipa, Rondani, *Prodr.*, i, 1856, p. 71; Blepharipoda, p. 96, Trixonomorpha, p. 163, Sisyropa, p. 163, pt. Brauer et Bergonstamm, *D. Zweiflug. d. K. Mus. z. Wien*, 1899; Gonina, pt. Walker, *List Dipt. Ins. Brit. Mus. London*, 737, pt. 3, 1849.

indica, (G. Trixonomorpha, Brauer, p. 163); Wiedem., (G. Tachina ?)  
Hab. Indig, Bengal.

thermophila, (G. Sisyropa, p. 163, Brauer); Brauer, loc. cit. Synon. Tachina, id., Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, Hamm, 1830, p. 325.  
Hab. Java.

## Genus ZAMBEZA.

Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 21.

*ocypiteroides*, id. *ibid.*, p. 21.

Hab. Singapore.

## Genus TACHINA.

Meig., *Illig. Magaz.*, ii, 1803, p. 280; Oodigaster, pt. Macq., *Ann. Soc. Ent. France*, ii, 1854; Voria, p. 195, Acemyia, p. 202, Marshamia, p. 57, pt., Rob.-Desv., *Myod.*, 1830.

*cinerea*, (Musca Tub.), Fabr., *Ent. Syst.*, iv, p. 331.

Hab. India.

*potans*, (Marshamia, R.-Desv.) Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pl., p. 299, *Hamm.*

Hab. China.

*sugens*, id. *ibid.*, p. 306.

Hab. Java.

*rufifrons*, id. *ibid.*, p. 318.

Hab. China.

*convergens*, id. *ibid.*, p. 320.

Hab. India.

*nigricornis*, id. *ibid.*, p. 322.

Hab. India.

*munda*, id., *ibid.* p. 324.

Hab. Tranquebar.

*flavipennis*, id., *Anal. Entomol.*, p. 44.

Hab. India.

*metallica*, id. *ibid.*, p. 46.

Hab. India.

*errans*, id. *ibid.*, p. 44.

Hab. India.

*macularis*, id. *ibid.*, p. 45.

Hab. India.

*melles*, id. *ibid.*, p. 46.

Hab. Java.

*viridiaures*, id. *ibid.*, p. 43.

Hab. India.

*nigriventris*, id. *ibid.*, p. 43.

Hab. India.

*molitor*, id. *ibid.*, p. 46.

Hab. India.

*orientalis*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 333.

Hab. India.

*innocens*, id. *ibid.*, p. 336.

Hab. China.

*orbata*, id. *ibid.*, p. 336.

Hab. India.

*fasciata*, id. *ibid.*, p. 337.

Hab. China, (Macao).

*salva*, id. *ibid.*, p. 340.

Hab. China.

*javana*, Macq., *Dipt. Erot.*, 4th Suppl., Paris, 1850, p. 204.

Hab. Java.

*bomboides*, Walker, *Ins. Saunders, Dipt.*, i, London, 1856, p. 271.

Hab. India.

*nitida*, id. *ibid.*, p. 271.

Hab. India.

*sobria*, id. *ibid.*, p. 272.

Hab. India.

*subcincta*, id. *ibid.*, p. 272.

Hab. India.

*dorsalis*, id. *ibid.*, p. 275.

Hab. Java.

*fulva*, id. *ibid.*, p. 276.

Hab. India.

*grandis*, id. *ibid.*, p. 276.

Hab. India.

*atriventris*, id. *ibid.*, p. 290.

Hab. India.

*umbrosa*, id. *ibid.*, p. 291.

Hab. India.

*adusta*, id. *ibid.*, p. 292.

Hab. India.

*alta*, id. *ibid.*, p. 293.

Hab. India.

*tricornota*, id. *ibid.*, p. 301.

Hab. India.

*ophirica*, id. *ibid.*, 1857, p. 19.

Hab. Mount Ophir.

### Genus LINNEMYIA.

Rob. Desvoidy, *Myod.*, p. 52, 1830; *Tachina*, pt., (auctor.).

*titan*, Walker, *List. Dipt. Ins. Brit. Mus.*, London, iv, p. 735, 1849.

Hab. Sylhet.

### Genus LYDELLA.

Rob. Desvoidy, *Myod.*, p. 112, 1830; *Tachina*, pt., (auctor.).

*lucagus*, Walker, *List. Dipt. Ins. Brit. Mus.*, London, iv, p. 768, 1849.

Hab. China.

### Genus MYOBIA.

Rob. Desv., *Myod.*, p. 99, 1830; *Tachina*, pt. Orellia, p. 765, *loc. cit.*, Solieria, *Ann. Soc. Ent. France*, 1841, 43, pt. Rob. Desv.

*nigripes*, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1856, deel x, p. 411.

Hab. Java.

*robusta*, V. d. Wulp, *Sumatra Exped.*, p. 40.

Hab. Sumatra.

### Genus EURIGASTER.

Macq., *S. à Buff. Dipt.*, ii, p. 115, Paris, 1835; *Tachina*, pt. (auctor.), Phryno, p. 143, Roesellia, p. 145, pt., Rob. Desv., *Myod.*, 1830.

*subferrifera*, Walker, *Journl. Proceed. Linn. Soc.*, London, i, 1857, p. 125.

Hab. Borneo.

*muscoïdes*, id. *ibid.*, p. 20.

Hab. Singapore.

*languida*, id., *Trans. Ent. Soc.*, London, iv, Pt. vi, 1857, p. 198.

Hab. India.

*cuprescens*, id. *ibid.*, p. 196.

Hab. India.

### Genus ORECTOCERA.

V. d. Wulp, *Sumatra Exped.*, p. 39.

*micans*, id. *ibid.*, p. 40.

Hab. Sumatra.



Genus HERMYIA.

Rob. Desv., *Myod.*, p. 226, 1830; Tachina, pt. (auctor).

beelsæbub, J. Bigot, *Synon. Tachina*, id., Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, Hamm, 1830, p. 301.

Hab. Java.

imbuta, J. Bigot, *Synon. Tachina*, id., Wiedem., *loc. cit.*, p. 302; Paralophosia ? Brauer, *d. Zweiflug. d. K. Mus. z. Wien.*, 1889, p. 164.

Hab. India.

alacris, J. Bigot, *Synon. Tachina*, id., *loc. cit.*, p. 303.

Hab. Java.

Genus EXORISTA.

Meig., *Illig. Magaz.*, ii, p. 280, 1803; Tachina, pt. (auctor.); Senometopia, p. 104, Lydella, p. 132, Masicera, p. 118, Eurigaster, p. 115, pt., Macq., *Dipt.*, *S. à Buff.*, ii, Paris, 1835; Hubneria, p. 602, Dorbinia, pt., p. 272, Rob. Desv., *Ann. Soc. Ent. France*, 1847, Carcelia, p. 176, Phryno, p. 143, Phryxo, p. 158, Zenillia, p. 152, Winthemia, p. 173, Rob. Desv., *Myod.*, 1830, Lomacantha, pt., p. 151, Vol. 3, 1859, Aporomyia, pt., Vol. 3, p. 90 (*nota*) *ibid.*, Rondani, *Prodr.*

fasciata, Jaennicke, *N. Exot. Dipter.*, Frankfurt, 1867, p. 75.

Hab. Java.

Genus THRYPTOCERA.

Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 87; Tachina pt. (auctor.); Actia, p. 85, Osmia, p. 84, Noera, p. 84, pt. Rob. Desv., *Myod.*, 1830, Herbstia, p. 10, Ramburin, pt., p. 17, id., *Ann. Soc. Ent., France*, 1851; Bigonicheta, p. 61, pt., Rondani, *Prodr.*, i, 1856.

setinervis, Thomson, *Frigatt Eugenie's Resa*, Stockholm, 1858-68, p. 519.

Hab. China.

Genus BLEPHARELLA.

Macq., *Dipt. Exot.*, 4th *Suppl.*, Paris, 1850, p. 203.

lateralis, id. *ibid.*, p. 204.

Hab. Pondicherry.

Genus OCHROPLEURUM.

Macq., *Dipt. Exot.*, 4th *Suppl.*, Paris, 1850, p. 212.

javanum, id. *ibid.*, p. 212.

Hab. Java.

## Genus CROSSOCNEMA.

J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 207.

*Javana*, id. *ibid.*, p. 208.

Hab. Java.

## Family DEXIDÆ.

J. Bigot, *ad hoc inedit.*, 1891; Dexiariae, Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 205; Dexina, Rondani, *Prodr.*, i, p. 23, 1866; Dexium, Schiner, 1862, *Faun. Austriaca, d. Flieg.*, p. 1.

## Genus DEXIA.

Meig., *Syst. Besch.*, v, 1826, p. 33; Dexilla, Westw. *Myocera*, p. 325; Catilia, 310, Esthonia, p. 305, Tholaira, p. 214, Zelia, p. 314, Sophia, p. 317, pt., Rob. Desv., *Myod.*, 1830.

*lepidæ*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, *Hamm*, 1830, p. 376.

Hab. Java.

*macropus*, id. *ibid.*, p. 375.

Hab. Java.

*javanensis*, Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 214.

Hab. Java.

*subcompressa*, Walker, *Ins. Saunders, Dipt.*, i, *London*, 1856, p. 313.

Hab. India.

*festiva*, V. d. Wulp., *Sumatra Exped.*, p. 41.

Hab. Sumatra? Java?

*munda*, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 126.

Hab. Borneo.

*extendens*, id. *ibid.*, p. 126.

Hab. Borneo.

*divergens*, id. *ibid.*, 1857, p. 21.

Hab. Singapore.

## Genus RUTILIA.

Rob. Desv., *Myod.*, 1830, p. 319.

*angusticarinata*, Macq., *Dipt. Exot., Suit. du 2nd Suppl.*, *Paris*, 1847, p. 5.

Hab. Java.

*navipennis*, id. *ibid.*, p. 50.

Hab. Java.

*nitens*, id. *ibid.*, 4th *Suppl.*, *Paris*, 1850, p. 216.

Hab. India.

## Genus SILBOMYIA.

Macq., *Dipt. Exot.*, ii, 3rd Pt., p. 118, Paris, 1843; Musca, pt. Fabr., Wied.

micans, Macq., *Dipt. Exot.*, (loc. cit.), p. 118; Synon., Musca, id. Fabr., *Syst. Anth.*, p. 291.

Hab. India, Sumatra, Java.

fuscipennis, id. ibid., p. 119; Synon. Musca, id. Fabr. ibid., p. 291.

Hab. Java, Sumatra.

infixa, Walker, (*Musca*) *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 25.

Hab. Singapore.

fumipennis, id. ibid., p. 25.

Hab. Singapore. •

## Genus MORINIA.

Rob. Desv., *Myod.*, 1830, p. 264; Doxia, pt. Volucella, pt., Schrank. Melanophora, pt., Macq., & à Buff. *Dipt.*, ii, Paris, 1835, p. 173; Melanomyna, pt. Rondani, *Prodr.*, i, 1856, p. 88.

ohloe, V. d. Wulp, *Sumatra Exped.*, p. 42; Synon. Dexia, id. Wiedem., *Ausser. Europ. Zweijluy. Ins.*, 2nd Pt., Hamm, 1830, p. 383.

Hab. Sumatra.

## Family SARCOPHAGIDÆ.

Sarcophagii, Macq., *S. à Buff. Dipt.*, ii, 1835, p. 219; Theramydæ, Rob. Desv., *Myod.*, 1830, pp. 25, 302; Sarcophagiæ, Zetterst., *Dipt. Scand.*, i, 1842, p. 5; Sarcophaginiæ, Schin., 1862, *Faun. Austriaca, D. Fliegen.*, 1st Pt., p. 70; Sarcophagæ, Westw. Dexinæ, pt. Rondani, *Prodr.*, i, 1856, p. 23.

## Genus MEGISTOGASTER.

Macq., *Dipt. Exot.*, 4th Suppl., Paris, 1850, p. 212; Dexia ? pt. (auctor.).

fuscipennis, id. ibid., p. 213.

Hab. Java.

costatus, Rondani, *Ann. d. M. Civ. d. Stor. Nat. d. Genova.*, vol. vii, 1875, p. 423.

Hab. Sarawak.

imbræus, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 126; Synon. Tachina, id., *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 781.

Hab. Bornéo, China.

## Genus CORDYLIGASTER.

Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 90; Dexia ? pt. (auctor.).

fuscifacies, J. Bigot, *Ann. Soc. Ent. France*, 1888, p. 101.

Hab. Java.

Genus DOLESCHALLA.

Walker, *Journ. Proceed. Linn. Soc., London*, 1861, p. 242; Dexia? pt. (auctor.).

*nigra*, J. Bigot, *Ann. Soc. Ent. France*, 1888, p. 98.

Hab. Indian Archipelago.

*piota*, id. *ibid.*, p. 99.

Hab. Indian Archipelago.

Genus RHAPHIS.

V. D. Wulp, *Tijdschr. v. Entom.*, xviii, 1885, p. 199; Dexia? pt. (auctor.).

*elongata*, id. *ibid.*, p. 200.

Hab. Ceylon.

Genus CATAPICEPHALA.

Maoq, *Dipt. Esot.*, 4th Suppl., Paris, 1850, p. 237.

*splendens*, id. *ibid.*, p. 237.

Hab. Java.

Genus PHRISOPODIA.

Maoq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 222; Pockia, Rob. Desv., *Myod.*, 1830, p. 335.

*metallica*, V. d. Wulp, *Sumatra Exped.*, p. 43.

Hab. Sumatra.

Genus SARCOPHAGA.

Meig., *Syst. Besch.*, v. p. 14, 1826, et, auctor.; Phorella, p. 362, Agria, p. 378, Rob. Desv., *Myod.*, 1830.

*ruficornis*, Fabr., *Ent. System.*, iv, p. 314, 6.

Hab. India.

*princeps*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 359.

Hab. Sumatra.

*tanionota*, id. *ibid.*, p. 360.

Hab. Java, Tranquebar.

*tenuipalpis*, Maoq., *Dipt. Esot.*, ii, 3rd pt., Paris, 1843, p. 101.

Hab. Pondicherry.

*lineatocollis*, id. *ibid.*, p. 101.

Hab. Java, Coromandel.

*javana*, id. *ibid.*, 4th Suppl., Paris, 1850, p. 232.

Hab. Java.

*sericea*, Walker, *Ins. Saunders. Dipt.*, vol. i, London, 1856, p. 326.  
Hab. India.

*reciproca*, id., *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 22.  
Hab. Malacca.

*aliena*, id. *ibid.*, p. 22.  
Hab. Java.

*rufipalpis*, V. d. Wulp, *Sumatra Exped.*, p. 42.  
Hab. Sumatra.

*emigrata*, Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 424.  
Hab. Sarawak.

*indicata*, Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 127.  
Hab. Borneo.

#### Genus SARCOPHILA.

Rondani, *Prodr.*, i, 1856, p. 86; *Sarcophaga*, Agria, pt.

*alba*, Schiner, *Novar. Reise*, 1868, p. 315.  
Hab. Ceylon.

#### Genus MYOPHORA.

Rob. Desv., *Myod.*, 1830, p. 337; *Sarcophaga*, pt. (auctor.).

*fulvicornis*, id. *ibid.*, p. 341.  
Hab. Bengal.

*duvaucelii*, id. *ibid.*, p. 351.  
Hab. Bengal.

#### Genus MORPHO.

~~Rob. Desv., *Myod.*, 1830, p. 405.~~

*affixa*, (Musca) Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 27.  
Hab. Singapore.

#### Genus CYNOMYIA.

Rob. Desv., *Myod.*, 1830, p. 363; *Sarcophaga*, pt. (auctor.), *Volucella*, pt.  
Schrank.

*violacea*, Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 233.  
Hab. Java.

*fortis*, Walker, *Journ. Proceed. Linn. Soc., London*, i, 1857, p. 127.  
Hab. Borneo.

*fulviventris*, Rondani, *Ann. Mus. Civ. d. Stor. Nat. Genova*, 1875, p. 425.  
Hab. Sarawak.

Family OCYPTERIDÆ.

- J. Bigot, *adhuc inedit.*, 1891; Ocyptera, Meig., *Syst. Besch.*, iv, 1824; Ocypterata, Rob. Desv., *Myod.*, 1830, p. 222; Rhyzomyza, pt. Fallen. Ocypterata, Macq., *S. & Buff. Dipt.*, ii, Paris, 1835, p. 179; Ocypterina, Schin., *Faun. Austr., d. Fliegen.*, 1862, p. 41; Tachinina, pt. Rond., *Prodr.*, i, 1856, pp. 22, 59.

Genus PHANIA.

- Meig., *Syst. Besch.*, iv, 1824, p. 218.
- indica**, Walker, *Ins. Saunders.*, i, London, 1856, p. 261.  
Hab. India.

Genus DUVAUCELIA.

- Rob. Desv., *Myod.*, 1830, p. 227.
- bicinota**, id. *ibid.*, p. 228.  
Hab. Bengal.

Genus OCYPTERA.

- Latr., *Diet. Hist. Nat.*, 1904; Syrphus, pt. Panzer; Besseria, pt., Rob. Desv., *Myod.*, 1830, p. 232; Ocypterula, Exogaster, pt. Rondani, *Prodr.*, i, 1856, p. 78.
- bicolor**, Wiedem., *Zool. Magaz.*, iii.  
Hab. India.
- fuscipennis**, id. *ibid.*  
Hab. India.
- umbripennis**, V. d. Wulp, *Sumatra Exped.*, p. 35.  
Hab. Sumatra.

Family ACHIASIDÆ.

- J. Bigot, *adhuc inedit.*, 1891.

Genus ACHIAS.

- Fabr., *Syst. Antl.*, 1805; Ancoropsis, pt., J. Bigot, *Ann. Soc. Ent. France*, 1866, p. 201.
- oculatus**, Fabr., *Syst. Antl.*, 1805.  
Hab. Java.
- ichneumones**, Westw., *Trans. Ent. Soc.*, v, London, 1850, p. 7.  
Hab. India.
- horsfieldii**, id. *ibid.*, p. 7.  
Hab. India.

Family MUSCIDÆ.

J. Bigot, *adhuc inedit.*, 1891; Muscidæ, Latr., *Hist. Nat. d. Ins.*, 1802; Muscoformes, pt. Meig., *System Geschreib.*, i, 1818; Muscidæ, pt. Leach., *Sam. Comp.*, 1819; Muscina, pt. Rob. Desvoidy, *Myod.*, 1830, p. 406; Muscaridæ, pt. Zetterst., *Dipt. Scand.*, 1842; Muscodæ, Muscina, Rond., *Prodr.*, i, 1856, pp. 23, 39; Muscides, Walker, *Musceæ*, Westw., *Muscidi*, pt., J. Bigot, (*olim*), Muscidæ, Schin., *Faun. Austriac. d. Fliegen*, i, 1862, p. 398; Muscidæ, pt. Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 262; Musciæ, pt. Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 235; Anthomyzidæ, pt. (auctor.).

Genus STOMOXIS.

Geoffr., *Hist. d. Ins.*, i, 1764; Conoptæ, pt. Linn.; Musca, pt. Degeer; Hæmatobin, pt. Rob. Desv., *Myod.*, 1830, p. 388; Syperosia, pt. Rond., *Prodr.*, i, 1856, p. 93.

**libatrix**, Rob. Desv., *Myod.*, 1830, p. 387.

Hab. Coromandel.

**flavipennis**, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 248.

Hab. Java.

**calcitrans**, Linn. (et auctor.), V. d. Wulp, *Sumatra Exped.*, p. 43; Schiner, *Novar. Reise*, 1868, p. 311.

Hab. Sumatra, Java, Batavia, Ceylon, Sydney, Europe.

**plurinotatus**, J. Bigot, *Soc. Zool. France, Paris*, 1887, p. 593.

Hab.

Genus RHYNCHOMYA.

Rob. Desv., *Myod.*, 1830, p. 424; Tachina, pt. Meig., 1802; Idia, pt. Loew.

**bicolor**, Macq., *Dipt. Exot.*, ii, 3rd Pt., *Paris*, 1843, p. 125.

Hab. Pondicherry.

**obsoleta**, Walker, *List. Dipt. Ins. Brit. Mus.*, iv, *London*, 1849, p. 810; Synon.

Idia, id. Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 355.

Hab.

**palliceps**, J. Bigot, *Soc. Zool. France, Paris*, 1887, p. 594.

Hab. India.

**plumata**, Schiner, *Novar. Reise*, 1868, p. 315.

Hab. Ceylon.

**aberrans**, id. *ibid.*, p. 316.

Hab. China.

**indica**, Rond., *Ann. d. Mus. Civic. d. Stor. Nat. d. Genova*, vol. vii, 1875, p. 424.

Hab. Sarawak.

**Genus STOMORHINA.**

Rondani, *Prodr.*, iv, 1861, p. 9; Idia, pt. Muscina, pt. Rondani.

**quadrinotata**, (Idia) J. Bigot, *Ann. Soc. Ent. France*, 1874, p. 238; *Synon. Muscina*, id. Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 429.  
Hab. Borneo.

**bivittata**, id., *Soc. Zool. France*, 1887, p. 592.  
Hab. India.

**Genus RHINIA.**

Rob. Desv., *Myod.*, 1830, p. 422; Idia (auctor.) pt.

**testacea**, Schin., *Novar. Reise*, 1868, p. 310; *Synon. Idia*, id. Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 246.

Hab. Nicobar Islands and Ile d. France.

**fulvipes**, J. Bigot, *Ann. Soc. Ent. France*, 1874, p. 239.  
Hab. Ceylon.

**Genus IDIA.**

Meig., *Syst. Besch.*, v, 1826, p. 1802; Musca, pt. (auctor.).

**xanthogastera**, (*nomen bisectum*), Rob. Desv., *Myod.*, 1830, p. 420.  
Hab. Java.

**flavipes**, id. *ibid.*, p. 420.  
Hab. India.

**bengalensis**, id. *ibid.*, p. 421.  
Hab. Bengal.

**xanthogaster**, Wiedem., *Nov. Dipter. Gener.*, p. 21.  
Hab. Java.

**mandarina**, id., *Ausser. Europ. Zweiflug. Ins.*, 2nd Part, *Hamm*, 1830, p. 350.  
Hab. China.

**discolor**, Fabr. *Ent. Syst.*, iv, p. 320.  
Hab. India, Java.

**melanostoma**, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 350.  
Hab. Java.

**metallica**, Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 246.  
Hab. Bengal.

**flavipennis**, id., *Dipt. Exot.*, ii, 3rd Pt. *Paris*, 1843, p. 126.  
Hab. Java.



*limbipennis*, id. *ibid.*, *Suit. d. 2nd Suppl.*, Paris, 1847, p. 54.  
Hab. Java.

*marginata*, id. *ibid.*, *4th Suppl.*, Paris, 1850, p. 249.  
Hab. Java.

*quadrinaculata*, id. *ibid.*, p. 240.  
Hab. Java.

*unicolor*, id. *ibid.*, p. 240.  
Hab. Java.

*lateralis*, V. d. Wulp, *Sumatra Exped.*, p. 44.  
Hab. Sumatra.

*tenebrosa*, Walker, *Journal, Proceed. Linn. Soc., London*, i, 1857, p. 23.  
Hab. Java.

*bicolor*, id. *ibid.*, p. 23.  
Hab. Malacca.

*bivittata*, id. *ibid.*, 1856, p. 128.  
Hab. Borneo.

*simplex*, id., *Trans. Ent. Soc., London*, 1857, p. 24.  
Hab. India.

*tripartita*, J. Bigot, *Ann. Soc. Ent. France*, 1874, p. 236.  
Hab. India.

*nigricauda*, id. *ibid.*, p. 237.  
Hab. Burma.

*cincta*, id. *ibid.*, p. 238.  
Hab. Ceylon.

*fulvipes*, id. *ibid.*, p. 239.  
Hab. Ceylon.

*mixta*, (*Musca*) Walker, *Trans. Ent. Soc., London*, 1857, p. 24.  
Hab. Singaperbang.

# Genus COSMINA.

Rob. Desv., *Myod.*, 1830, p. 423; Idia pt.

*varia*, (G. Idia), Walker, *Ins. Saunders, Dipt.*, vol. i, London, 1856, p. 350.  
Hab. Ceylon?

*micans*, J. Bigot, *Ann. Soc. Ent. France*, 1874, p. 241.  
Hab. Pulo-Penang.

*pinangiana*, id. *ibid.*, p. 241.  
Hab. Pulo-Penang.

Genus *BENGALIA*.

Rob. Desv., *Myod.*, 1830, p. 425; *Ormia*, pt., *ibid.*, p. 428.

*labiata*, *id. ibid.*, p. 426.

Hab. Bengal.

*pallens*, *id. ibid.*, p. 426.

Hab. Bengal.

*melanocera*, *id. ibid.*, p. 426.

Hab. Bengal.

*lateralis*, Macq., *Dipt. Exot.*, ii, 3rd Pt., *Paris*, 1843, p. 120.

Hab. Pondicherry.

*dioclea*, (G. Musca), Walker, *List. Dipt. Ins. Brit. Mus.*, Pt. iv, *London*, 1849, p. 869.

Hab. Borneo.

Genus *PHORMIA*.

Rob. Desv., *Myod.*, 1830, p. 465.

*dotata*, (G. Musca), Walker, *Journl. Proceed. Linn. Soc.*, *London*, i, 1837, p. 25.

Hab. Singapore.

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Genus *PHUMOSIA*.

Rob. Desv., *Myod.*, 1830, p. 427.

*fulvicornis*, J. Bigot, *Soc. Zool. France*, 1887, p. 611.

Hab. Java.

Genus *OCHROMYIA*.

Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 248; *Bengalia*, p. 425, *Ormia*, p. 428; *Palpostoma*, p. 429, pt. Rob. Desv., *Myod.*, 1830.

*jejuna*, Macq., *id. ibid.*, p. 249; *Synon. Musca*, *id. Fabr., Syst. Anth.*, *Bengalia testacea*, Rob. Desv., *Myod.*, 1830, p. 426.

Hab. Bengal, Java, Australia, Cayenne?

*fasciata*, *id.*, *Dipt. Exot.*, ii, 3rd Pt., *Paris*, 1843, p. 133.

Hab. India.

*javana*, *id. ibid.*, *Suppl.*, *Paris*, 1846, p. 196.

Hab. Java.

*bicolor*, V. d. Wulp, *Sumatra Exped.*, p. 45.

Hab. Sumatra.

*quadrinotata*, J. Bigot, *Soc. Zool. France*, 1887, p. 606.

Hab. Ceylon.

*fulvescens*, *id. ibid.*, p. 609.

Hab. Indian Archipelago.

## Genus MORELLIA.

Rob. Desv., *Myod.*, 1830, p. 405; Musca, pt.

*affixa*, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 27.

Hab. Java.

## Genus CALLIPHORA.

Rob. Desv., *Myod.*, 1830, p. 433; Musca, Lucilia, pt. (auctor.), Melinda, pt., p. 439, Rob. Desv. loc. cit.

*rufipes*, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 129.

Hab. Java.

*fulviceps*, V. d. Wulp, *Sumatra Exped.*, p. 44.

Hab. Sumatra.

## Genus MELINDA.

Rob. Desv., *Myod.*, 1830, p. 439; Calliphora, pt. (auctor.).

*metilia*, (Musca), Walker, *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 898.

Hab. Nepal.

## Genus CATAPICEPHALA.

Macq., *Dipt. Exot.*, 4th Suppl., Paris, 1850, p. 237.

*splendens*, id. ibid., p. 237.

Hab. Java.

## Genus CYNOMYIA.

Rob. Desv., *Myod.*, 1830, p. 363; Musca, Volucella, Schrank. *Sarcophaga*, (auctor.).

*violacea*, Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 233.

Hab. Java.

*quadrivittata*, id. ibid., 5th Suppl., 1855, p. 108.

Hab. India.

## Genus CYRTONEVRA.

(Cyrtonevra vel Curtonevra, olim), Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 274; Musca, Anthomyia, pt. (auctor.); Morellia, p. 406, Muscina, p. 406, Rob. Desv., *Myod.*, 1830.

*pruinosa*, V. d. Wulp, *Tijdschr. v. Entom.*, 1879-80, p. 24.

Hab. Java.

Genus *CHRYSONYA*.

- Rob. Desv., *Myod.*, 1830, p. 444; *Lucilia*, pt. (auctor.)  
*duvancellii*, Rob. Desv., id. *ibid.*, p. 451.  
 Hab. Bengal.  
*tifata*, (Musca), Walker, *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 871.  
 Hab. China.  
*remuria*, (Musca), id. *ibid.*, p. 871.  
 Hab. China.  
*flaviceps*, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1837, p. 23; Synon. *Lucilia*,  
 id. Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 145.  
 Hab. Coromandel.  
*chrysoides*, id. *ibid.*, p. 23.  
 Hab. Java, Indian Archipelago.

Genus *SOMOMYA* (Sic).

- Rondani, Bertol., *G., Affid. Acad. d. Bologna*, 1862; Musca, Calliphora, *Luci-*  
*lia*, pt. (auctor.); *Phormia*, p. 405, *Melinda*, p. 439, *Mufetia*, p. 431,  
*Chrysomya* (Sic), p. 444; Rob. Desv., *Myod.*, 1830; *Mya*, pt., (olim),  
 Rondani, *Prodr.*, i, 1856, p. 90; *Myochrysa*, id., *Arch. d. l. Soc. d. Zool.*,  
 iii, 1864, p. 28.  
*pagodina*, J. Bigot, *Ann. Soc. Ent. France*, 1877, p. 40.  
 Hab. Pondicherry.  
*fuscocincta*, id. *ibid.*, p. 40.  
 Hab. Assam.  
*rubiginosa*, id. *ibid.*, p. 41.  
 Hab. Burma.  
*birmanensis*, id. *ibid.*, p. 41.  
 Hab. Burma.  
*infumata*, id. *ibid.*, p. 42.  
 Hab. Burma.  
*versicolor*, id. *ibid.*, p. 42.  
 Hab. Ceylon.  
*obesa*, id. *ibid.*, p. 43.  
 Hab. Ceylon.  
*oceruleocincta*, id. *ibid.*, p. 43.  
 Hab. Pulo-Pinang.  
*picifacies*, id. *ibid.*, p. 45.  
 Hab. Java.

*oceruleolimbata*, id., *Soc. Zool. France*, 1887, p. 599.  
Hab. Java.

*dives*, id. *ibid.*, p. 600.  
Hab. Calcutta.

*atrifacies*, id. *ibid.*, p. 601.  
Hab. Calcutta.

*melanorhina*, id. *ibid.*, p. 602.  
Hab. Java, Ternate, Waigiu, New Guinea.

*pachysoma*, id. *ibid.*, p. 603.  
Hab. Java.

*nitidifacies*, id. *ibid.*, p. 603.  
Hab. Java.

*cyaneocincta*, id. *ibid.*, p. 604.  
Hab. Java, Ternate, Timor.

*nebulosa*, id. *ibid.*, p. 604.  
Hab. Java, Ternate.

*xanthomera*, Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 427.  
Hab. Borneo.

#### Genus PLINTHOMYIA.

Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 427; *Ochromyia*,  
pt. Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 248.

*emimelanis*, id. *ibid.*, p. 128.  
Hab. Borneo.

#### Genus LUCILIA.

Rob. Desv., *Myod.*, 1830, p. 452; *Musca*, *Calliphora*, *Melinda*, *Chrysomyia*,  
*Somomya*, pt. (auctor).

*bengalensis*, id. *ibid.*, p. 460.  
Hab. Bengal.

*brevigaster*, Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 256.  
Hab. Java.

*flavidipennis*, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 139; *Synon. Senu V. d.*  
*Wulp. Sumatra Exped.*, p. 46; *L. philippensis*, Macq., *Dipt. Exot.*, ii, 3rd Pt., p. 146;  
*L. flavicalyptrata*, id., *loc. cit.*, *Suit du 2nd Suppl.*, 1847, p. 55; *L. caeruleifrons*, id.  
*ibid.*, 4th *Suppl.*, 1850, p. 248; *L. indica*, p. 453, et *L. eximia*, p. 456, Rob. Desv.,  
*Myod.*, 1830.  
Hab. Bengal, Coromandel, Sumatra, Java, Timor.

*porphyryna*, (*Musca*), Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 24.  
Hab. Mount Ophir.

*trita*, (Musca), id. *ibid.*, p. 24.

Hab. Malacca.

*defixa*, (Musca), id. *ibid.*, p. 24.

Hab. Singapore.

*divisa*, (Musca), id., *Ins. Saunders., Dipt., London, 1856, p. 333.*

Hab. India.

*inducta*, (Musca), id. *ibid.*, p. 335.

Hab. India.

*polita*, (Musca), id. *ibid.*, p. 338.

Hab. India.

*serenissima*, (Musca), id. *ibid.*, p. 340.

Hab. India.

*temperata*, (Musca), id. *ibid.*, p. 340.

Hab. India.

*chalybea*, (Musca), Wiedem., *Ausser. Europ. Zweiflug. Ins., 2nd Pt., Hamm, 1830, p. 402.*

Hab. Java.

*phellia*, (Musca), Walker, *List. Dipt. Ins. Brit. Mus., iv, London, 1840, p. 884.*

Hab. Bengal.

*dux*, Eschh., *Entomogr.*, i, p. 114; Synon. Sensu, V. d. Wulp, *Sumatra Exped.*, p. 46; Musca, id. Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, Hamm, 1830, p. 406; Compsomyia, id. Rond., *Ann. Mus. Civ. d. Stor. Nat. Genova, 1875, p. 426*; Lucila flaviceps, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 145; Chrysomya duvaucelii, Rob. Desv., *Myod.*, 1830, p. 451; Compsomyia, Rondani, *Ann. Mus. Civ. d. Stor. Nat. Genova, 1875, p. 426.*

Hab. Pondicherry, Ceylon, China, Borneo, Coromandel, Aru, Wokan, Kandari, Celebes.

*caerulea*, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 140; Synon. Musca, id. Wied., *Zool. Magaz.*, iii, p. 23.

Hab. Java.

*orientalis*, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 145.

Hab. Pondicherry, Sumatra.

*ruficornis*, id. *ibid.*, 2nd Suppl., 1847, p. 84.

Hab. India.

*vittata*, id. *ibid.*, *Suites du 2nd Suppl.*, 1847, p. 56.

Hab. Java.

*ruficeps*, id. *ibid.*, p. 56.

Hab. Java.

*cyanea*, id. *ibid.*, 4th Suppl., p. 248.

Hab. Java.

*abdominalis*, (Musca), Fabr., *Syst. Anth.*, p. 294.  
Hab. India.

*rectinervis*, Macq., *Dipt. Exot.*, 5th Suppl., Paris, 1855, p. 111.  
Hab. India.

*virens* (Musca), Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 409.  
Hab. Java.

*lauta* (Musca), id. *ibid.*, p. 410.  
Hab. Java.

*ligurriens* (Musca), id. *ibid.*, p. 655.  
Hab. Java, China.

*viridiaurea* (Musca), id., *Zool. Magaz.*, iii, p. 22.  
Hab. Java.

*pinguis* (Musca), Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 25.  
Hab. India.

*leucodes*, Fraunfeld, *Verh. K. K. v. b. Gesellsch.*, Wien, xvii, p. 453.  
Hab. Singapore.

*pavonina*, Schiner, *Novar. Reise*, 1868, p. 305.  
Hab. Nicobar Islands.

*leonardi*, Wevonen ~~Archiv~~, *Nederland*, iv, 1869, p. 41.  
Hab. Serorabaja.

#### Genus ZONA.

Walker, *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 806; Tephritis, pt.  
Gray.

*violacea*, id. *ibid.*, p. 306; Synon. Tephritis, id., Griffith, *Anim. Kingd.*  
Hab. Nepal.

#### Genus COMPSOMYIA.

Rondani, *Ann. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 425; Lucilia, Calli-  
phora, pt.

*accinota*, id. *ibid.*, p. 426.  
Hab. Borneo.

*caeruleivirens*, id. *ibid.*, p. 426.  
Hab. Borneo.

*violaceinitens*, id. *ibid.*, p. 426.  
Hab. Borneo.

#### Genus PYRELLIA.

Rob. Desveidy, *Myod.*, 1830, p. 462; Musca, Lucilia, pt. (auctor).

*violacea*, Macq., *Dipt. Exot.*, 4th Suppl., Paris, 1850, p. 251.  
Hab. Asia, Sumatra (V. d. Wulp).

*sivah*, J. Bigot, *Ann. Soc. Ent. France*, 1878, p. 33.  
Hab. India.

*stella*, id. *ibid.*, p. 34.  
Hab. Ceylon.

*diffidens* (Musca), Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 26.  
Hab. Singapore.

*confixa* (Musca), id. *ibid.*, p. 26.  
Hab. Java, Mt. Ophir.

*refixa* (Musca), id. *ibid.*, p. 26.  
Hab. Singapore.

*perfixa* (Musca), id. *ibid.*, p. 26.  
Hab. Java, Mt. Ophir.

*exempta* (Musca), id. *ibid.*, 1857, p. 123.  
Hab. Borneo.

#### Genus METALLEA.

V. d. Wulp, *Tijdschr. v. Entom.*, deel xxiii, 1870-80, p. 22.

Hab. Java.

#### Genus SYNAMPHONEURA.

J. Bigot, *Ann. Soc. Ent. France*, 1886, bulletin, p. 14.

*cuprina*, id. *ibid.*  
Hab. Java.

#### Genus POLLENIA.

Rob. Desv., *Myod.*, 1830, p. 412; Musca, pt. (auctor.) Nitellia, p. 417, pt.  
Rob. Desv.

*reflectens*, Walker, *Journl. Proceed. Linn. Soc., London*, 1856, p. 24.  
Hab. Malacca.

*munda*, Ost.-Sacken, *Ann. Mus. Civ. d. Stor. Nat. Genova*, 1881, p. 450; Synon. Musca  
id. Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 308.  
Hab. Java.

#### Genus MUSCA.

Linn., *Faun. Suec.*, 1763, p. 439; Volucella, pt. Schrk., *Plaxemya*, p. 392,  
Byomya, p. 392, pt. Rob. Desv., *Myod.*, 1830.

*varicolor*, Fabr., *Syst. Antl.*, p. 293.  
Hab. Tranquebar.



*adumbrata*, id., *Anal. Entom.*, p. 48.

Hab. Java.

*hortensia*, id. *ibid.*, p. 49.

Hab. Java.

*planiceps*, id. *ibid.*, p. 48.

Hab. Java.

*albina*, Wied., *Ausser. Europ. Zweifl. Ins.*, 2nd Pt., Hamm, 1830, p. 415.

Hab. India.

*hortulana*, id. *ibid.*, p. 417.

Hab. China.

*humilis*, id. *ibid.*, p. 418.

Hab. India.

*ventrosa*, id. *ibid.*, p. 656.

Hab. Sumatra, China.

*mediana*, id. *ibid.*, p. 657.

Hab. China.

*xanthomelas*, Fabr., *Anal. Ent.*, p. 49.

Hab. Java.

*nebulosus*, Fabr., *Ent. Syst.*, iv, p. 321.

Hab. India.

*rufifrons*, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 152.

Hab. Java.

*suota*, Walker, *Ins. Saunders, Dipt.*, i, London, 1856, p. 334.

Hab. India.

*inducta*, id. *ibid.*, p. 335.

Hab. India.

*determinata*, id. *ibid.*, p. 345.

Hab. India.

*cluvia*, id., *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 885.

Hab. India.

*domestica*, Linn., V. d. Wulp, *Sumatra Exped.*, p. 45; Schiner, *Novar. Reise*, 1868.

Hab. Sumatra, Europe (Cosmopolitan).

*corvina*, Fabr., V. d. Wulp, *ibid.*, p. 45; Schiner, *Novar. Reise*, 1868.

Hab. Sumatra, Europe (Cosmopolitan).

*niveisynamma*, Thomson, *Fregat. Eugénie's Resa*, p. 547.

Hab. China, Manilla, Malacca.

*convexifrons*, id. *ibid.*, p. 467.

Hab. China.

*scapularis*, Rondani, *Ann. Mus. Civ. d. Stor. Nat. Genova*, 1875, p. 428.  
Hab. Borneo.

*euteneiata*, J. Bigot, *Soc. Zool. d. France*, 1887, p. 605.  
Hab. Pondicherry, Cochin China.

*cingalesina*, id. *ibid.*, p. 606.  
Hab. Ceylon.

### Family ANTHOMYZIDÆ.

J. Bigot, *adhuc inedit.*, 1891; Anthomyzides, Latr., *Reg. Anim.*, 1829; Anthomyzæ, Rob. Desv. *Myod.*, 1830, p. 473; Anthomyia, Anthomyzæ, Rondani, *Prodr.*, i, 1856, p. 12-24; Anthomyia, Schiner, *Faun. Austriaca*, 1st Pt., 1862, p. 509.

### Genus ARICIA.

Rob. Desv., *Myod.*, 1830, p. 486; Musca, Anthomyia, Anthomyza, pt. (auctor.) *Macrosoma*, p. 402, *Phaonia*, p. 482, *Mydina*, p. 495, *Fellia*, p. 476, *Euphemia*, p. 485; *Trennia*, p. 484, *Rohrella*, p. 489, pt. Rob. Desv., *loc. cit.*, *Hydrophoria*, p. 297, *Spilogaster*, p. 293, pt. Macq., *S. & Buff. Dipt.*, ii, *Paris*, 1835; *Yotodesia*, pt. Rondani, *Prodr.*, iv, 1861, p. 9; *Azelidæ*, pt. Rob. Desv., *Myod.*, 1830, p. 501.

*argentata*, Walker, *Journ. Proc. Linn. Soc.*, i, 1857, p. 27.  
Hab. Malacca.

*patula*, id. *ibid.*, p. 28.  
Hab. Borneo, Singapore.

*inaperta*, id. *ibid.*, 1857, p. 129.  
Hab. Borneo.

### Genus HYDROTÆA.

Rob. Desv., *Myod.*, 1830, p. 509; Musca, Anthomyia, Aricia, pt. (auctor.), *Blainvillia*, pt. Rob. Desv., *loc. cit.*, p. 514; *Onodont*, pt. Rond., *Prodr.*, i, 1856, p. 94.

*solenitis*, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 27.  
Hab. Mt. Ophir.

*chalcogaster*, Schiner, *Novar. Reise*, 1868, p. 303; *Synon. Anthomyia*, id., *Wiedem., Ausser. Europ. Zweifl. Ins.*, 2nd Pt., *Hamm*, 1830, p. 427.  
Hab. Java, Nicobars.

### Genus OPHIRA.

Rob. Desv., *Myod.*, 1833, p. 516; Musca, Anthomyia, Aricia, pt. (auctor.).

*congressa*, Walker, *Trans. Ent. Soc., London*, 1857, vol. iv, p. 50.  
Hab. India.

**nigra**, V. d. Wulp., *Sumatra Exped.*, p. 48; Synon. *Anthomyia*, id. et *Gracilia*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 432; *Ophira riparia*, Dolesch., *Naturk Tijdschr. v. Nederl. Indie, Batavia*, 1858, p. 115.  
Hab. China, Sumatra, Amboina.

#### Genus LIMNOPHORA.

Rob. Desv., *Myod.*, 1830, p. 517; *Musca*, *Anthomyia*, *Aricia*, pt. (anot.), *Helina*, p. 493, *Limosia*, p. 535, *Phyllis*, p. 603, pt. Rob. Desv., *loc. cit.*  
**bengalensis**, id. *ibid.*, p. 518.  
Hab. Bengal.  
**macei**, id. *ibid.*, p. 519.  
Hab. Bengal.

#### Genus DIPLOGASTER.

J. Bigot, *Ann. Soc. Ent. France*, 1886.  
**nigricauda**, id. *ibid.*  
Hab. Ceylon.

#### Genus ANTHOMYIA.

Meig., *Illig. Magaz.*, ii, 1803, p. 281; *Chortophila*, p. 326, *Atomogaster*, p. 329, *Pegomyia*, p. 350, pt. Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835: *Aricia*, *Anthomyza*, pt. Zetterst., *Dipt. Scand.*, *Egoria*, p. 555, *Norina*, p. 557, *Adia*, p. 558, *Phorbia*, 559, *Leucophora*, p. 562, *Delia*, p. 571, *Egle*, p. 584, *Azolia*, p. 592, pt. Rob. Desv., *Myod.*, 1830; *Acanthiptera*, Rondani, *Prodr.*, i, 1856, p. 95.  
**trina**, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 657.  
Hab. China.  
**exigua**, id. *ibid.*, p. 658.  
Hab. China.  
**bina**, id. *ibid.*, p. 426.  
Hab. China.  
**quadrata**, id., *Analect. Entom.*, p. 52.  
Hab. Java.  
**tonitru**, id. *ibid.*, p. 52.  
Hab. India.  
**bibax**, id., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 491.  
Hab. China.  
**galens**, id. *ibid.*, p. 491.  
Hab. Sumatra.  
**sexa**, id. *ibid.*, p. 494.  
Hab. Tranquebar.

*metallica*, id. *ibid.*, p. 435.

Hab. India.

*illocata*, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 129.

Hab. Borneo.

*perce*, id., *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 939.

Hab. India.

*indica*, id., *Insect. Saunders, Dipter.*, vol. i, London, 1856, p. 352.

Hab. India.

*detracta*, id. *ibid.*, p. 350.

Hab. India.

*indicata*, id. *ibid.*, p. 362.

Hab. India.

*aliena*, id. *ibid.*, p. 363.

Hab. India.

*lobalis*, Thomson, *Fregat. Eugenie's Resa, Stockholm*, 1858-68, p. 551.

Hab. China.

*lenticeps*, id. *ibid.*, p. 553.

Hab. China.

*bisetosa*, id. *ibid.*, p. 555.

Hab. China.

#### Genus SPILOGASTER.

Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 293; Musca, Anthomyia, Aricia, Anthomyza, Hylemyia, pt. (auctor.), Hydrophoria, p. 297, pt. Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, et Rondani, *Prodr.*, i, 1856, p. 94; Fellæa, p. 476, Mydæ, p. 479, Muscina, p. 406, Rohrella, p. 489, Mydina, p. 495, etc., pt. Rob. Desv., *Myod.*, 1830.

*albiceps*, V. d. Wulp, *Sumatra Exped.*, p. 47.

Hab. Sumatra.

*pruinosis*, J. Bigot, *Ann. Soc. Ent. France*, 1884, p. 287.

Hab. Ceylon.

*leucocerus*, id. *ibid.*, p. 291.

Hab. Indian Archipelago.

#### Genus CÆNOSIA.

Meig., *Syst. Besch.*, v, 1826, p. 210; Musca, Aricia, Anthomyia, Anthomyza, pt. (auctor.), Schœnomyza, pt. Halid., *Ent. Ent.*, 1838; Limosia, p. 535, Palusia, p. 542, Caricea, pt., p. 530, Rob. Desv., *Myod.*, 1830; Chelisia, p. 101, Oplogaster, p. 98, Mycophaga, p. 102, Rondani, *Prodr.*, i, 1856.

*torrida*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 437.

Hab. China.

*macularis*, id., *ibid.*, p. 438.

Hab. India.

*grata*, id. *ibid.*, p. 438.

Hab. China.

*pumila*, id. *ibid.*, p. 439.

Hab. India.

*marginata*, id. *ibid.*, p. 440.

Hab. China.

*loeta*, id. *ibid.*, p. 440. •

Hab. India.

*leucospila*, id. *ibid.*, p. 441.

Hab. India.

*pulla*, id. *ibid.*, p. 441.

Hab. Tranquebar.

*modesta*, V. d. Wulp, *Sumatra Exped.*, p. 48.

Hab. Sumatra.

*macularis*, (*nom. bislectum*), Thomson, *Fregat. Eugenies Resa*, *Stockholm*, 1858-68, p. 559.

Hab. India? China.

*boops*, *ib. ibid.*, p. 559.

Hab. China.

*compressiventris*, id. *ibid.*, p. 559.

Hab. Malacca.

*simplex*, id. *ibid.*, p. 560.

Hab. China, Sumatra.

*falcata*, id. *ibid.*, p. 560.

Hab. China.

*insurgens*, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 129.

Hab. Borneo.

#### Genus *CARICEA*.

Rob. Desv., *Myod.*, 1830, p. 530; *Cænusia*, pt. (auctor.).

*leptosoma*, Rond., *Ann. Mus. Civ. d. Stor. Nat. Genova*, 1875, p. 429.

Hab. Borneo.

#### Genus *LISPE*.

Latr., *Precis d. Caract. Gener.*, 1796, *Gen. Crust. et Ins.*, iv, p. 347; *Lispa*,

Rob. Desv., *Myod.*, 1830, p. 524; *Musca*, pt. (auctor).

*glabra*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 442.

Hab. India.

*dilatata*, id. *ibid.*, p. 448.

Hab. India.

*orientalis*, id., *Analect. Entom.*, p. 51.

Hab. India.

*assimilis*, id. *ibid.*, p. 51.

Hab. India.

*vittipennis*, Thomson, *Fregat. Eugenie's Resa, Stockholm, 1858-68*, p. 561.

Hab. China.

*hyalipennis*, id. *ibid.*, p. 562.

Hab. China.

*sinensis*, Schiner, *Novar. Reise, 1866*, p. 296.

Hab. China.

*nicobarensis*, id. *ibid.*, p. 297.

Hab. Nicobars.

*tetrastigma*, id. *ibid.*, p. 297.

Hab. Ceylon.

#### Genus HOMALOMYIA.

Bouché, *Nat. d. Ins.*, i, 1884, p. 88; Musca, *Anthomyia*, *Aricia*, pt. (auctor.), *Fannia*, p. 567, *Philinta*, 568, *Aminta*, p. 569, pt. Rob. Desv., *Myod.*, 1830; *Myantha*, p. 95, Rond., *Prodr.*, i, 1856; *Cœlomyia*, pt. *Halid.*

*canicularis*, Schiner, *Novar. Reise, 1866*, p. 298; *Synon. Anthomyia* id. Meig.

Hab. Nicobars, Europe.

#### Family SCATOPHAGIDÆ.

J. Bigot, *adhuc inedit.*, 1891; *Scatomyzides*, Fall., *Spec. Entom.*, 1810; *Scatomyzidæ*, Latr., Macq., *S. à Buff. Dipt.*, 1835; *Scatophaginæ*, p. 614, *Malacosomæ*, p. 606, Rob. Desv., *Myod.*, 1830; *Scatophaginæ*, Schiner, *Dipt. Austr. d. Flieg.*, 2nd Pt., 1864, p. 14; *Scatophagina*, Rond., *Prodr.*, i, 1856, pp. 24, 98.

#### Genus EUPTEROMYIA.

J. Bigot, *Rev. et Magaz. d. Zool. Guerin*, No. 7, 1859, p. 6.

*trivittata*, id. *ibid.*, p. 6.

Hab. Burma.

#### Circulus—ACALYPTERICTI.

J. Bigot, *adhuc inedit.*, 1891; *Acalyptera*, Macq., *S. à Buff.*, ii, *Paris*, 1835, p. 354; *Acalypteratæ*, Macq., *Dipt. Exot.*, ii, 3rd Pt., *Paris*, 1843, p. 173.

## Family HELOMYZIDÆ.

J. Bigot, *adhuc inedit*, 1891; Helomyzides, Westw., *Introduci.*, 1840; Scatomyzidæ, Latr., pt. Scatomyzides, pt. Fallen; Palomydæ, pt. p. 658, Rob. Desv., *Myod.*, 1830; Helomyzinæ, p. 20, Dryomyzinæ, p. 38, Sciomyzinæ, p. 44, pt. Schiner, *Faun. Austr. d. Flieg.*, 1st Pt., 1864, p. 18; Scatophagina, pp. 24, 98, Sciomyzina, pp. 24, 104, pt. Rondani, *Prodr.*, i, 1856.

## Genus HELOMYZA.

Fallen, *Dipter. Suec.*, 1820; Helomyza, pt. Meig., *System. Besch.* (et auctor.), Herbina, p. 698, Suillia, p. 642, pt. Rob. Desv., *Myod.*, 1830.

*circumfusa*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 598.  
Hab. Sumatra.

*maura*, Walker, *Ins. Saunders. Dipt.*, i, London, 1856, p. 406.  
Hab. India.

*intereuns*, id., *Journ. Proc. Linn. Soc., London*, i, 1857, p. 28.  
Hab. Mt. Ophir.

*exeuns*, id. *ibid.*, p. 29.  
Hab. Mt. Ophir.

*orientalis*, id. *ibid.*, 1857, p. 129; Synon. Sciomyza, id. Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 575.  
Hab. Java, Borneo.

*fusco-costata*, id. *ibid.*, 1857, p. 120.  
Hab. Borneo.

*æquata*, id. *ibid.*, p. 130.  
Hab. Borneo.

*limbata*, id. *ibid.*, p. 130.  
Hab. Borneo.

*provecta*, id. *ibid.*, p. 130.  
Hab. Borneo.

*invicta*, id. *ibid.*, p. 130.  
Hab. Borneo.

## Genus SCIOMYZA.

Fallen, *Dipt. Suec.*, 1820. (auctor.); Colobœa, pt. Zetterst., *Dipt. Scand.*, Scatophaga, pt. Fabr.; Antiocheta, pt. Halid.; Dytia, p. 692, Pherbellia, p. 695, Chetocera, p. 697, Melina, 695, Arina, 696, pt. Rob. Desv., *Myod.*, 1830.

*repleta*, Walker, *Ins. Saunders. Dipt.*, i, London, 1856, p. 399.  
Hab. India.

*terminalis*, id., *Trans. Ent. Soc., London*, 1857-60, p. 31.

Hab. India.

*reticulata*, Thomson, *Fregat. Eugénies Resa, Stockholm*, 1858-68, p. 570.

Hab. China.

*propinqua*, id. *ibid.*, p. 570.

Hab. China.

### Genus DRYOMYZA.

Fallen, *Dipter. Suec.*, 1820; Meig. (et auctor.), *Dryope*, p. 618, pt. Rob.  
Desv., *Myod.*, 1830.

*maculipennis*, Macq., *Dipt. Exot.*, 4th Suppl., *Paris*, 1850, p. 273.

Hab. India.

### Genus GAUZANIA.

Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 130.

*devecta*, id. *ibid.*, p. 131.

Hab. Borneo.

### Genus XARNUTA.

Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 28.

*leucotelus*, id. *ibid.*, p. 28.

Hab. Singapore.

### Genus SAPROMYZA.

Fallen, *Dipt. Suec.*, 1820, (et auctor.); *Toxonevra*, pt. Macq., *S. à Buff.*  
*Dipt.*, ii, *Paris*, 1835, p. 404; *Lycia*, p. 637, *Sylvia*, p. 636, *Herbina*, p.  
698, *Suillia*, p. 642, Rob. Desv., *Myod.*, 1830; *Palloptera*, pt. Fallen;  
*Dacus*, pt. Fabr.

*conferta*, Wiedem., *Ausser. Europ. Zweifluy. Ins.*, 2nd Pt., *Hamm*, 1830, p. 454.

Hab. China.

*falleni*, id. *ibid.*, p. 445.

Hab. India.

*levis*, id. *ibid.*, p. 456.

Hab. China.

*bengalensis*, Macq., *Dipt. Exot.*, ii, 3rd Pt., *Paris*, 1843, p. 188.

Hab. Bengal.

*biguttata*, id. *ibid.*, p. 188.

Hab. Java.



*Javana*, id. *ibid.*, 4th *Suppl.*, 1850, p. 274. \*

Hab. Java.

*pocella*, Schiner, *Novar. Reise*, 1868, p. 279.

Hab. Nicobars.

*scutellaris*, V. d. Wulp, *Tijdschr. v. Entom.*, deel xxiii, p. 39.

Hab. Java.

### Genus MINETTIA.

Rob. Desv., *Myod.*, 1830, p. 646; *Sapromyza*, pt. (auctor.).

*signata*, V. d. Wulp, *Sumatra Exped.*, p. 52.

Hab. Sumatra.

### Family PSILOMYDÆ.

J. Bigot, *adhuc inedit.*, 1891; *Psilomydæ*, pt. Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 416; *Psilinæ*, Schiner, *Faun. Austr.*, *D. Flieg.*, 2nd Pt., 1864, p. 196; *Psilites*, pt. O. Heer, *Ins. Fauna*, ii, 1849; *Loxoceridæ*, pt. Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 372; *Cordyluridæ*, Macq., *loc. cit.*, p. 375; *Scatomyzidæ*, pt. Latr. Fabr.; *Opomyzidæ*, pt. Fall., *Zett.*; *Palomydæ*, Rob. Desv., *Myod.*, 1830, p. 658; *Chilizina*, pt. Rondani, *Prodr.*, i, 1856, p. 122.

### Genus PSILA.

Meig., *Illig. Magaz.*, ii, 1803, p. 278; *Scatophaga*, pt. Fall. *Zetterst. Psilomyda*, pt. Latr. *Psilomyia*, Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 420; *Oblicia*, p. 620, Rob. Desv., *Myod.*, 1830.

*apicalis*, Wiedem., *Ausser. Europ. Zweifl. Ins.*, 2nd Pt., *Hamm*, 1830, p. 527.

Hab. China.

### Family TETANOCERIDÆ.

J. Bigot, *adhuc inedit.*, 1891; *Dolichocera*, pt. Latr., *Reg. Anim.*, 1829; *Macq.*, *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 361; *Sciomyzidæ*, pt. Fall. *Tetanocerinae*, Schiner, *Faun. Austr. D. Flieg.*, 2nd Pt., 1864, p. 52; *Palomydæ*, pt. Rob. Desv., *Myod.*, 1830, p. 658; *Sciomyzinae*, pt. Rondani, *Prodr.*, i, 1856, p. 104; *Tetanoceridæ*, J. Bigot, (*olim*).

### Genus SEPEDON.

Latr., *Dict. Hist. Nat.*, vol. 24, 1804, *Gen. Crust. et Ins.*, iv, p. 349; *Syrphus*, pt., Mulio pt. Fab., Rossi.

*Javanensis*, Rob. Desv., *Myod.*, 1830, p. 677.

Hab. Java, Sumatra.

*ferruginosus*, Wiedem., *Ausser. Europ. Zweifl. Ins.*, 2nd Pt., *Hamm*, 1830, p. 577.

Hab. India.

**plombellus**, id. *ibid.*, p. 577.

Hab. China.

**senescens**, id. *ibid.*, p. 579.

Hab. China.

**crishna**, Walker, *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 1079.

Hab. Nepal.

### Genus TETANOCERA.

Latr., *Gen. Crustac. et Insect.*, iv, p. 350, 1809; *Tetanocerus*, Dumeril; *Oscinis*, pt. Fabr.; *Euthycerus*, pt. Latr.; *Dyctia*, p. 692, *Pherbina*, Rob. Desv., *Myod.*, 1830, p. 687.

**discaelis**, Walker, *Trans. Ent. Soc. London*, 1857-60, p. 54.

Hab. Burma.

### Family CALOBATIDÆ.

J. Bigot, *adhuc inedit.*, 1891; *Leptopodites*, Latr., *Cuvier, Regn. Anim.*, 1829; *Leptopoditæ*, Macq., *Suit à Buff. Dipt.*, ii, Paris, 1835, p. 486; *Opomyzidæ*, pt. Fabr. *Thelidomydæ*, Rob. Desv., *Myod.*, 1830, pp. 704-734; *Tanypezinæ*, Schiner, *Faun. Austr. d. Flieg.*, 2nd Pt., 1864, p. 190; *Tanypezina*, Rond., *Prodr.*, i, 1856, pp. 24, 114; *Neriades*, pt. Westw., *Introd. Modern. Classic. Ins.*, 1840; *Sepsidæ*, pt. Fallen; *Leptapodidæ*, *Longinidi*, pt. J. Bigot, (*olim*).

### Genus NERIUS.

Fabr., *Syst. Anth.*, 1805; *Neria*, Rob. Desv., *Myod.*, 1830, p. 736.

**fuscus**, Wiedem., *Anal. Entom.*, p. 15.

Hab. Java, Sarawak.

**lineolatus**, id., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pl., Hamm, 1830, p. 552.

Hab. Javq.

**duplicatus**, id. *ibid.*, p. 553.

Hab. Java.

**inermis**, Schiner, *Novar. Reise.*, 1868, p. 248.

Hab. Nicobars.

**indica**, Rob. Desv., *Myod.*, 1830, p. 737.

Hab. India.

**fuscipennis**, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1842, p. 241.

Hab. Java, Mt. Ophir, Singapore.

### Genus NOTHYBUS.

Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 439.

**longithorax**, id. *ibid.*, p. 439.

Hab. Sarawak.

Genus CALOBATA.

Meig., *Illig. Magaz.*, ii, 1808, p. 276; Ceyx, Dumer. Tanipoda, pt. Rondani, *Prodr.*, i, 1856, p. 116.

*leucopessa*, Wiedem., *Anal. Entom.*, p. 41.  
Hab. India.

*albitarsis*, id., *Zool. Magaz.*, iii.  
Hab. Java.

*vidua*, id., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 540.  
Hab. Tranquebar.

*splendens*, id. *ibid.*, p. 539.  
Hab. Ceylon.

*stylophora*, Schiner, *Novar. Reise*, 1868, p. 589.  
Hab. Nicobars.

*albimana*, Macq., *Dipl. Exot.*, ii, 3rd Pt., Paris, 1843, p. 245,  
Hab. Java, Port Jackson, Cuba? Philadelphia?

*basalis*, Walker, *Ins. Saunders. Dipter.*, London, 1856, p. 391.  
Hab. India.

*contracta*, id. *ibid.*, p. 395.  
Hab. India.

*cyanescens*, id., *Trans. Ent. Soc., London*, 1857-60, p. 61.  
Hab. Burma.

*prudens*, Ost-Sacken, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881, p. 455.  
Hab. Sumatra.

*morbida*, id. *ibid.*, p. 457.  
Hab. Java, Sumatra.

*confinis*, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 37.  
Hab. Singapore, Mt. Ophir.

*immixta*, id. *ibid.*, p. 37.  
Hab. Malacca.

*cedens*, id. *ibid.*, 1857, p. 135.  
Hab. Borneo.

Genus TANIPODA.

Rondani, *Prodr.*, i, 1856, p. 116; Calobata, pt.

*strenua*, Rond.; *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 440; *Synon.*  
Calobata, id. Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 135.  
Hab. Sarawak, Borneo.

*caligata*, id. *ibid.*, p. 440.  
Hab. Sarawak, Borneo.

*Intestabris*, id. *ibid.*, p. 441.

Hab. Sarawak, Borneo.

*cubitalis*, id. *ibid.*, p. 441.

Hab. Sarawak, Borneo.

### Genus MACROTOMA.

Delaporte, *Ann. Sc. Nat.*, xxv, 1832, p. 457; Longina, pt. Wiedem., *Ausser.*

*Europ. Zweiflugs. Ins.*, 2nd Pt., Hamm, 1830, p. 554; Longina, Macq.,

*Suit. d. Buff. Dipt.*, ii, Paris, 1835, p. 493; Diatrina, pt. Westw., *Griff.*

*Anim. Kingd.*

*pelleterii*, Delaporte, *loc. cit.*

Hab. Cochinchina.

### Genus TENIAPTERA.

Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 491.

*albimana*, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, New series 1856, p. 413.

Hab. Djokjokarta.

*cinereipennis*, J. Bigot, *Ann. Soc. Ent. France*, 1886, p. 376.

Hab. Burma.

*amena*, id. *ibid.*, 1886, p. 376.

Hab. Burma.

### Genus MINEORALLA.

Rondani, *Nouv. Ann. d. Scien. Nat. d. Bologna*, 1850, p. 18.

*birmanensis*, J. Bigot, *Ann. Soc. Ent. France*, 1886, p. 382.

Hab. Burma.

### Genus GRAMMICONYIA.

J. Bigot, *Rev. et Magaz. d. Zool. Guerin.*, No. 7, Paris, 1859, p. 10.

*testacea*, id. *ibid.*, p. 10.

Hab. Ceylon.

### Genus MICROPEZA.

Meig., *Illig. Magaz.*, ii, 1803, p. 276; Calobata, pt. (auctor.); *Phantasma*, pt., p. 789, Rob. Desv., *Myod.*, 1830.

*fragilis*, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 37.

Hab. Singapore, Mt. Ophir.

GENUS CARDIACEPHALA.

Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 242; Nerius, Calobata, pt. (auctor.)

longicollis, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 135.  
Hab. Borneo.

GENUS TEXARA.

Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 38.

compressa, id. *ibid.*, p. 38.  
Hab. Singapore.

GENUS CEPHALIA.

Meig., *Syst. Besch.*, v, 1826, p. 169; Myrmeconya, pt. Rob. Desv., *Myod.*, 1830, p. 721.

bicolor, J. Bigot, *Ann. Soc. Ent. France*, 1886, p. 385.  
Hab. Ceylon.

FAMILY SEPSIDÆ.

J. Bigot, *adhuc inedit.*, 1891; Sepsidæ, Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 475; Ortalidæ, pt. (auctor.), Carpomyzæ, pt. Latr.; Thelidomydæ, pt. Rob. Desv., *Myod.*, 1830, pp. 704, 734; Sepsinæ, Schiner, *Faun. Austr. d. Flieg.*, 2nd Pt., 1864, p. 175; Tanypezinæ, Rond., *Prodr.*, i, 1856, p. 114.

GENUS SEPSIS.

Fallen, *Dipter. Succ.*, 1820; Ortalis, Tephritis, pt. (auctor.); Micropeza, pt. Latr., id. Rob. Desv., p. 740, Rob. Desv., *Myod.*, 1830; Enicita, pt. Westw.; Enicopus, pt. Walker, *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 1002; Sepsis, (auctor.).

trivittata, J. Bigot, *Ann. Soc. Ent. France*, 1886, p. 388.  
Hab. Ceylon.

indica, Wiedem., *Analect. Entom.*, p. 57.  
Hab. India.

nitens, id. *ibid.*, p. 57.  
Hab. India.

lateralis, id., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 468.  
Hab. China.

complicata, id. *ibid.*, p. 468.  
Hab. China.

bicolor, id. *ibid.*, p. 468.

Hab. China.

viduata, Thomson, *Ficqnt. Engenies Resa, Stockholm, 1858-68*, p. 586.

Hab. China.

monostigma, id. *ibid.*, p. 597.

Hab. China.

### Genus MICHOGASTER.

Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 483; Cephalia, pt. Wiedem.;

Polystodes, pt., p. 722, Rob. Desv., *Myod.*, 1830.

bambusarium, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia, New Series 1856*, p. 413.

Hab. Djokjokarta.

### Family DIOPSIDÆ.

J. Bigot, *adhuc inedit.*, 1891.

### Genus DIOPSIS.

Linn. *Id. Dahl. Diss. d. Big. Ins.*, 1838; Diopsidæ, Macq., *Dipt. Exot.*, ii, 3rd

Pt., *Paris*, 1843, p. 234, (et auctor).

circularis, Macq. *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 486.

Hab. India, Java, Cape. of Good Hope?

subfasciata, id., *Dipt. Exot.*, ii, 3rd Pt., *Paris*, 1835, p. 238.

Hab. Java.

dalmanni, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 560.

Hab. Java.

ichneumoneæ, Donovan, *Ins. Ind. Rees. Encyclop.*, xi pl. 2; Synon. Senu Walker,

*List. Dipter., Ins. Brit. Mus.*, iv, *London*, 1849, p. 1060; D. indica, Westw. *Linn.*

*Trans.* xvii, p. 299.

Hab. Java, India.

westwoodii, (Dehann), Westw., *Cabinet. Orient. Entom.*, *London*, 1848, p. 37.

Hab. India.

quinqueguttata, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 36.

Hab. Malacca.

discrepans, id. *ibid.*, 1857, p. 134.

Hab. Borneo.

attenuata, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia, New Series 1856*,

p. 413; Synon. Senu Ost-Sacken, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881,

p. 490; D. latimana, Rondani, *Ann. Mus. Civ. Genova*, vii, p. 444, et D. lativola,

Rond., *ibid.*, p. 445.

Hab. Java, Borneo, Sarawak.

*apicalis*, id. *ibid.*, p. 413; *Synon. D. graminicola*, id. *ibid.*, 1857, p. 417.

Hab. Java.

*dubis*, J. Bigot, *Ann. Soc. Ent. France*, 1874, p. 111.

Hab. Borneo.

*belsebuti*, id. *ibid.*, p. 113.

Hab. Borneo.

*villosa*, id. *ibid.*, p. 114.

Hab. Borneo.

### Genus TELEOPSIS.

Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, pp. 442–43; *Diopsis*, pt. (auctor).

*sykesii*, Rondani, id. *ibid.*, p. 443; *Synon. Diopsis*, id. Gray, Westw., *Linn. Trans.*, xvii, p. 310.

Hab. India, Sarawak.

*brevicooptum*, Rond., *ibid.*, p. 443.

Hab. Sarawak.

*longicooptum*, id. *ibid.*, p. 444.

Hab. Sarawak.

*fulviventris*, J. Bigot, *Ann. Soc. Ent. France*, 1880, p. 94.

Hab. India.

### Genus SPHYRACEPHALA.

Westwood, *Cabinet of Orient. Entomol.*, London, 1848, p. 37.

*hearseiana*, id. *ibid.*, p. 37.

Hab. India,

### Family TRYPETIDÆ.

J. Bigot, *adhuc inedit.*, 1891; *Carpomyzæ*, *Ortalidæ*, *Tephritidæ*, pt. Fallen, (et auctor.), *Myodinae*, Rob. Desv., *Myod.*, p. 704, et *Aciphoreæ*, *ibid.*, 1830, p. 743; *Ortaloidi* et *Ortalidinae*, pt., p. 6, *Tephritoidi*, pt., p. 5, Rondani, *Dipt. Ital. Prod. Part. VII, Bullet. d. Soc. Entom. Italiana*, vol. i, Fasc., 1 et 2, 1869, et vol. iii, Fasc., 2, 1871; *Ortalinae* et *Trypetinae*, Schiner, *Faun. Austriaca D. Flieg.*, 2nd Pt., pp. 8 et 9, 1864.

### Division ORTALIDA.

J. Bigot, *adhuc inedit.*, 1891; *Ortalidæ*, Fallen, 1810, Macq. *Dipt.* ii, 1835, p. 429; *Carpomyzæ*, pt. Latr., *Reg. Anim.*, *Myodinae*, p. 704 et *Aciphoreæ*, pt., p. 743, Rob. Desv., *Myod.*, 1830; *Ortaloidi* et *Ortalidinae*, pt. Rondani, p. 5, *Dipter. Ital. Prod.*, vii, Fasc., 3, 1869; *Ortalinae*, pt. Schiner, *Faun. Austr. d. Flieg.*, 1864, p. 8.

**Genus BACTROCERA.**

Guerin, *Voy. de la Coquille, Dipt.*, 1830, p. 300; *Dacus*, pt. (auctor.).

*fasciatipectus*, (*Bactrocera*), Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia, New Series*, 1856, p. 412.

Hab. Java.

*maculipennis*, (*Bactrocera*), id. *ibid.*, p. 412.

Hab. Java.

**Genus DACUS.**

Fabr., *Syst. Antl.*, Meig., *Syst. Besch.*, vi, 1830, p. 21; *Oscinia*, pt. Latr.

*Brachyopa*, pt. Meig., *Syst. Besch.*, iii, *Hamm*, 1822, p. 262.

*ferrugineus* (*Musca* id. Fabr., *Ent. Syst.*, iv); Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 515.

Hab. India, Java.

*umbrosus*, Fabr., *Syst. Antl.*, p. 274.

Hab. Sumatra.

*fascipennis*, Wiedem., *Zool. Magaz.*, iii, p. 28.

Hab. Java.

*klugii*, id., *Anal. Entom.*, 1869, p. 56.

Hab. India.

*longicornis*, id., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 524.

Hab. Java.

*limbipennis*, Macq., *Dipt. Exot.*, ii, 3rd Pt., *Paris*, 1843, p. 217.

Hab. Java.

*ritsemæ*, Weyenberg, *Archiv. Neerland.*, iv.

Hab. Java.

*incisus*, Walker, *Trans. Ent. Soc., London*, 1857-60, p. 56.

Hab. Burma.

*squalidus*, id. *ibid.*, p. 58.

Hab. India.

*cylindricus*, V. d. Wulp, *Tijdschr. v. Entom.*, deel xxiii, 1880, p. 29.

Hab. Java.

**Genus HERINA.**

Rob. Deav., *Myod.*, 1830, p. 724; *Musca*, *Tephritis*, pt. Fabr.; *Ortalis*, pt.

Meig.

*calcarata*, Macq., *Dipt. Exot.*, i, 3rd Pt., *Paris*, 1843, p. 207.

Hab. India.



*cyaneiventris*, V. d. Wulp, *Sumatra Exped.*, p. 51.

Hab. Sumatra.

### Genus SENOPTERINA.

Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 454; *Dacus*, pt. (auctor.).

*senae*, V. d. Wulp, *Sumatra Exped.*, p. 50; Synon. *Dacus*, id. Wiedem., *Zool. Magaz.*, iii, p. 29; *Senopterina labialis*, Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 430.

Hab. Java, Sumatra, Sarawak.

*batavensis*, Schiner, *Novar. Reise*, 1868, p. 288.

Hab. Batavia.

*flavipes*, id. *ibid.*, p. 288.

Hab. Singapore.

*sonalis*, Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 430.

Hab. Sarawak.

*marginata*, V. d. Wulp, *Tijdschr. v. Entom.*, 1879-80, p. 27.

Hab.

### Genus ECTYPALPUS.

Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 443.

*testaceus*, id. *ibid.*, p. 443.

Hab. Java.

### Genus LOXONEVRA.

Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 446; *Platystoma*, pt. (auctor.).

*decora*, id. *ibid.*, Synon. *Dytia*, id. Fabr., *Syst. Anth.*, *Platystoma*, id. Wiedem., *Auser, Europ. Zweifl. Ins.*, 2nd Pt., Hamm, 1830, p. 568.

Hab. Java.

### Genus CAMPYLOCERA.

Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 220.

*myopina*, V. d. Wulp, *Tijdschr. v. Entom.*, deel xxiii, 1879-80, p. 37.

Hab. Java.

*robusta*, id. *ibid.*, p. 38.

Hab. Java.

### Genus OXYCEPHALA.

Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 197.

*plotipennis*, Walker, *List. Dipt. Ins. Brit. Mus.*, London, 1849, addenda, p. 1162.

Hab. India.

Genus LAMPROGASTER.

Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 211; *Chromatomyia*, Walker, *List. Dipt. Ins. Brit. Museum*, iv, London, 1849, p. 801; Scholastes, Guerin, *Voy. Coquille, Zool.*, p. 299.

*flavipennis*, id. *ibid.*, p. 211; *Zigemula*, pt. *Sensu* Walker; *Pterogenia*, pt. J. Bigot.  
Hab. Indian Archipelago.

*frauenfeldi*, Schiner, *Novar. Reise*, 1868, p. 285.  
Hab. Batavia.

*sonata*, Walker, *Journl. Proceed. Linn. Soc.*, i, 1857, p. 30.  
Hab. Singapore.

*glabra*, id. *ibid.*, p. 30.  
Hab. Singapore.

*transversa*, id. *ibid.*, p. 30.  
Hab. Malacca.

*vittata*, id. *ibid.*, p. 31.  
Hab. Singapore.

*truncatula*, id. *ibid.*, p. 31.  
Hab. Singapore.

*basilutua*, id. *ibid.*, 1857, p. 131.  
Hab. Borneo.

*divisa*, id. *ibid.*, p. 131.  
Hab. Borneo.

*punctata*, id. *ibid.*, p. 132.  
Hab. Borneo.

*guttata*, id. *ibid.*, pp. 31, 132.  
Hab. Singapore, Borneo.

Genus PROSYROGASTER.

(*Adapsilidi*?) Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 438.  
*chelyonothus*, id. *ibid.*, p. 438.  
Hab. Sarawak, Borneo.

Genus ZYGENULA.

Doleseh., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1858, p. 117; *Pterogenia*, J. Bigot, *Rev. et Mag. d. Zool. Guerin*, 1859, p. 809.

Genus PTEROGENIA.

J. Bigot, *Rev. et Magaz. d. Zoolog. Guerin*, No. 7, Paris, 1859, p. 8.  
*dayak*, id. *ibid.*, p. 9.  
Hab. Sarawak.

## Genus PLATYSTOMA.

Meig., *Illig. Magaz.*, ii, 1803, p. 277; Dytia, pt. (auctor), Trupanea, pt., Schrank, Hesyquillia, p. 708, Palpomyia, p. 708, pt. Rob. Desv., *Myod.*, 1830; Megaglossa, Rond., *Bullet. d. Soc. Ent. Italiana*, 1869, *Prodr.*, vii, p. 32; Hemigaster, p. 431, Elachigaster, p. 432, Ditomogaster, p. 433, pt. Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875.

albovittatus, (Hemigaster), Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 431.

Hab. Borneo.

albitarsis, (Elachigaster), id. *ibid.*, p. 432.

Hab. Borneo.

xanthomera, (Ditomogaster), id. *ibid.*, p. 433.

Hab. Borneo.

orientalis, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1842, p. 200.

Hab. India.

irrorata, Thomson, *Fregat. Eugenes Reise, Stockholm*, 1858-68, p. 577.

Hab. Indian Archipelago, Malacca.

punctiplena, Ost-Sacken, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881, p. 471, id. Walker, *Journl. Proceed. Linn. Soc., London*, 1861, p. 268; Synon. Stellata, loc. cit., 1866, p. 32; Atomaria, id. *ibid.*, 1859, p. 148, Parvula Schiner, *Novar. Reise*, 1868, p. 286.

Hab. Batavia, Celebes.

superba, V. d. Wulp, *Sumatra Exped.*, p. 50.

Hab. Sumatra.

rigida, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 32.

Hab. Singapore.

## Genus ENICONEVRA.

Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 203.

fenestralis, id. *ibid.*, p. 204.

Hab. India; West Africa.?

## Genus ORTALIS.

Fallen, *Dipter. Suec.* 1820? Dytia, Scatophaga, Tephritis, Otites, pt. Latr. *Reg. Anim.*, Oscinie, pt. Latr., Blatuvillia, p. 514, Myennis, p. 717 Myodina, 727, pt. Heramya, pt., p. 709, Rob. Desv., *Myod.*, 1830.

isara, Walker, *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 994.

Hab. India.

rutilans, (Boisduvalia), Rob. Desv., Macq., *S. d. Buf. Dipt.*, ii, Paris, 1835, p. 427.

Hab. India.

Genus DASYNEURA.

Saunders, *Trans. Ent. Soc.*, iii, London, 1841, p. 60; *Dacus*, pt. (auctor.).

*caudata*, Walker, *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 1073; Synon.

*Dacus*, id. Fabr., *Syst. Anth.*, p. 276.

Hab. Java, N. Bengal.

*tau*, id. *ibid.*, p. 1074.

Hab. China.

*sonata*, id. *ibid.*, p. 1075.

Hab. Bengal.

Genus THEMARA.

Walker, *Journl. Proceed. Linn. Soc.*, London, i, 1857, p. 33; *Acanthoneura*, pt.

Macq., *Dipt. Ecot.*, ii, 3rd Pt., Paris, 1843, p. 220; *Achias*, pt. Westw.

*maculipennis*, Ost.-Sack., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881, p. 460;

Synon. *Achantoneura*, (Macq.), id. Westw., *Cabin. Orient. Entom.*, London, 1858,

p. 38; *Achias horsfeldi*, Westw., *Trans. Ent. Soc. London*, 1850; *Themara ampla*,

Walker, *Journl. Proceed. Linn. Soc.*, London, i, 1857, p. 33.

Hab. Singapore.

*hirtipes*, Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 435.

Hab. Sarawak.

*ypsilon*, id. *ibid.*, p. 435.

Hab. Sarawak.

Genus XIRIA.

Walker, *Journl. Proceed. Linn. Soc.*, London, i, 1857, p. 36.

*antica*, id. *ibid.*, p. 36.

Hab. Mt. Ophir.

*obliqua*, Ost.-Sacken, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881, p. 463.

Hab. Sumatra.

Genus RHADINOMYIA.

Schiner, *Novar. Reise*, 1868, p. 290.

*orientalis*, id. *ibid.*, p. 290.

Hab. Java, Batavia.

Genus RIVELLIA.

Rob. Deav., *Myod.*, 1880, p. 729; *Tephritis*, pt. Latr.; Fabr. *Ortalis*, pt. (auctor.).

*persiana*, J. Bigot, *Indian Economic Entomol.*, i, 1890, p. 192.

Hab. India.

## Genus CERATITIS.

Macleay, *Zool. Journl.*, iv, p. 475; *Petalophora*, Macq., *S. d. Buff. Dipt.*, ii, Paris, 1885, p. 454; *Trypeta*, pt. Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 496, (*Tryp. capitata*).

*capitata*, (*Trypeta id.*), Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 496, *C. citriferda* Macleay, *l. c.*, p. 475.

Hab. India.

## Genus ADRAMA.

Walker, *Journl. Proceed. Linn. Soc., London*, 1858, p. 117; *Synon. Senu Ost.-Sacken*, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881, p. 479; *Acanthipeza*, Rondani, *Ann. id.*, iii, 1875, p. 437.

*selecta*, *id. ibid.*, p. 117; *Synon. Senu Ost.-Sacken*, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881, p. 479; *Enicoptera rufiventris*, Walker, *Journl. Proceed. Linn. Soc., London*, 1860, p. 163, *Psila cruciata*, *id. ibid.*, iii, p. 123; *Acanthipeza maculifrons*, Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 438.

Hab. Borneo, Amboina, New Guinea, Wokan.

## Genus CHARAX.

Walker, *Trans. Ent. Soc., London*, 1857-60, p. 58.

*planidorsum*, *id. ibid.*, p. 58.

Hab. Burma.

## Genus RIOXA.

Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 35.

*lancoolata*, *id. ibid.*, p. 35.

Hab. Singapore, Borneo.

*confinis*, *id. ibid.*, 1856, p. 132.

Hab. Borneo.

*erebus*, Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 436.

Hab. Sarawak.

*nox*, *id. ibid.*, p. 437.

Hab. Sarawak.

## Genus SOPHIRA.

Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 24.

*concinna*, *id. ibid.*, p. 132.

Hab. Borneo.

*venusta*, id. *ibid.*, 1857, p. 35.

Hab. Singapore.

### Genus NŒTA.

Rob. Desv., *Myod.*, 1830, p. 778.

*latuscula*, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 133.

Hab. Borneo.

### Genus STRUMERA.

Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 33.

*conformis*, id. *ibid.*, p. 34.

Hab. Singapore.

### Genus VALONIA.

Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 34.

*complicata*, id. *ibid.*, p. 34.

Hab. Malacca.

### Genus OXYPHORA.

Rob. Desv., *Myod.*, 1830, p. 757.

*malaica*, Schiner, *Novar. Reise.*, 1868, p. 274.

Hab. Ceylon.

### Genus CHELYPHORA.

Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1875, p. 433.

*borneana*, id. *ibid.*, p. 434.

Hab. Sarawak.

### Genus AGASTRODES.

J. Bigot, *Rev. et Magaz. d. Zool., Guérin*, No. 7, Paris, 1859, p. 7.

*niveitarsis*, id. *ibid.*, p. 8.

Hab. Ceylon.

### Division TRYPETIDA.

J. Bigot, *adhuc inedit.*, 1891; *Carpomyzæ*, pt. Latr., *Regn. Anim.*; *Ortalidæ*, pt. Fallen; *Tephritidæ*, pt. Macq., *Suit. d. Buff. Dipt.*, ii, Paris, 1835, p. 447; *Aciphoreæ*, pt., p. 748, Rob. Desv., *Myod.*, 1830; *Trypetinæ*, Schiner, *Faun. Austriaca*, d. *Flieg.*, 2nd Pt., ix, 1864; *Ortalidina*, pt. Rond., *Prodr.*, i, 1856, p. 108.

## GENUS TRYPETA.

Meigen, *Ilig. Magaz.*, ii, p. 1803; Scatophaga, Dacus, pt. Fabr.; Trupanea, pt. Schrank; Tephritis, pt. (auctor), Sitarea, p. 703, Terellia, p. 758, pt., Rob. Desv., *Myod.*, 1830; Carpomyia, p. 111, Ceraiocera, p. 111, pt., Rond., *Prodr.*, i, 1856.

*stilla*, Walker, *List. Dipt. Ins. Brit. Museum*, iv, London, 1849, p. 1021; Synon. Trypeta melalencu? Walker, *Journl. Proceed. Linn. Soc., London*, 1864, p. 238; Sensu Osten-Sacken, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881, p. 459.

Hab. China, Ceram, Celebes.

*sinica*, id., *Trans. Ent. Soc., London*, 1857-60, p. 41.

Hab. China.

*tubifera*, id. *ibid.*, p. 42.

Hab. China.

*rudis*, id., *Journ. Proc. Linn. Soc.*, i, 1857, p. 133.

Hab. Borneo.

*cruz*, (Musca, Dacus), Fabr. *Encycl. Syst.*, iv, p. 358, et *Syst. Anth.*, p. 277.

Hab. India.

*violacea*, Wiedem., *Ausacr. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 476.

Hab. Java.

*vaga*, id. *ibid.*, p. 490.

Hab. Bengal.

*modesta*, id. *ibid.*, p. 493; Synon. Dacus, id. Fabr., *Syst. Anth.*, p. 278; Sensu Wiedem., *loc. cit.*

Hab. Bengal.

*obsoleta*, id. *ibid.*, p. 499.

Hab. Java.

*incisa*, id., *Anal. Entom.*, p. 53.

Hab. Bengal.

*acrotaeta*, id. *ibid.*, p. 54.

Hab. India.

*fessata*, *Ausacr. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 503; Synon. Tephritis, id. Fabr., *Syst. Anth.*, p. 320; Sensu Wiedem., *loc. cit.*

Hab. Tranquebar.

*reinhardti*, id., *Anal. Entom.*, p. 54.

Hab. India.

*baallaria*, id., *Ausacr. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 510.

Hab. Sumatra.

*tuota*, Walker, *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 1021.

Hab. Bengal.

*stella*, id. *ibid.*, p. 1030.

Hab. Bengal.

*antiqua*, id., *Insect. Saunders, Dipter*, vol. i, London, 1856, p. 378.

Hab. India.

*cylindrica*, id. *ibid.*, p. 380.

Hab. India.

*mixta*, id. *ibid.*, p. 385.

Hab. India.

*contraria*, id. *ibid.*, p. 385.

Hab. India.

*ferruginea*, id. *ibid.*, p. 387.

Hab. India.

*incisa*, Thomson, *Fregat. Eugenics Resa*, Stockholm, 1858-68, p. 579, (*nom. bislect.*?).

Hab. China.

*sinensis*, id. *ibid.*, p. 585.

Hab. China.

#### Genus EULEIA.

Walker, *Ent. Magaz.*, iii, p. 81; Trypeta, pt.

*mutica*, (Trypeta) id., *List. Dipt. Ins. Brit. Museum*, iv, London, 1849, p. 1036.

Hab. India.

#### Genus VIDALIA.

Rob. Desv., *Myod.*, 1830, p. 719.

*impressifrons*, id. *ibid.*, p. 719.

Hab. India.

#### Genus STYLOPHORA.

Rob. Desv., *Myod.*, 1830, p. 723.

*sonata*, id. *ibid.*, p. 723.

Hab. Coromandel.

#### Genus BOISDUVALIA.

Rob. Desv., *Myod.*, 1830, p. 730.

*rutilans*, id. *ibid.*, p. 730.

Hab. India.

#### Genus ACANTHONEURA.

Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 220.

*fuscipennis*, id. *ibid.*, p. 221.

Hab. Bengal.



Genus UROPHORA.

- Rob. Desv., *Myod.*, 1830, p. 769; Dacus, pt. Fabr.; Trupanea, pt. Schrank;  
Scatophaga, pt. Germar; Tephritis, pt. (auctor.); Trypeta, pt. (auctor.).
- twiniata*, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 222.  
Hab. Java.
- vittithorax*, id. *ibid.*, 4th Suppl., Paris, 1850, p. 286.  
Hab. India.
- fasciata*, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 134.  
Hab. Borneo.

Genus TEPHritis.

- Latr., *Dict. Hist. Nat.*, vol. 24, 1804; Dacus, Tephritis, pt. Fabr.; Trupanea, pt. Schrank; Trypeta, pt. Meig. Loew.; Acinia, pt. Macq., *S. a Buff.*, ii, Paris, 1835, p. 469; Walker, *List. Dipt. Brit. Mus.*, p. 1024; Sphenella, p. 773; Oxya, p. 765; Urellia, p. 774, Rob. Desv., *Myod.*, 1830.
- fasciventris*, (nom. bisectum), Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, p. 225.  
Hab. India.
- fasciventris*, (nom. bisectum), id. *ibid.*, *Suit. du 2nd Suppl.*, Paris, 1847, p. 65.  
Hab. Java.
- paritii*, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, New series, 1856, p. 412.  
Hab. Djokjokarta.
- asteria*, Schiner, *Novar. Reise*, 1868, p. 270.  
Hab. Madras.
- brahma*, id. *ibid.*, p. 272.  
Hab. Madras.

Genus ENSINA.

- Rob. Desv., *Myod.*, 1830, p. 751; Tephritis, pt. Fall., Zetterst.; Trypeta, pt. Meig., Loew.
- guttata*, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 230.  
Hab. India.
- reticulata*, Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, New Series, 1856, p. 412.  
Hab. Djokjokarta.

Genus SCHOLASTES.

- Loew, *Monograph Dip. v. N. America*, iii, Washington, 1873, p. 38; Platystoma, pt. Guérin; Acinia, pt. Dolesch.; Lamprogaster, pt. (auctor.).

*cinctus*, Ost.-Sacken, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1881, p. 479; *Synon.*  
*Platystoma*, id. Guérin, *Fey. d. l. Coquille, Zool.*, p. 299; *Acinia*, *faciestriata*,  
 Dolesch., *Naturk. Tijdschr. v. Nederl. Indie, Batavia*, 1857, p. 416; *Lamprogaster*  
*transversa*, Walker, *Journl. Proceed. Linn. Soc., London*; 1857, p. 30; id. *margini-*  
*fera*, id. *loc. cit.*, 1858, p. 111; *Lamprogaster sexvittata*, id. *loc. cit.*, 1861, p. 261.  
 Hab. Malacca, Port-Jackson, Amboina, Arou, New Guinea, Celebes, Batchian,  
 Stuart, Is.

### Genus ACINIA.

Rob. Desv., *Myod.*, 1830, p. 720; *Scatophaga*, pt. Fabr.; *Tephritis*, pt.  
 Fall., Wied., Zetterst.; *Trypeta*, pt. Wiedem., Meig., Loew; *Urophora*,  
 pt. (auctor.), *Aciura*, pt. Rob. Desv., *Myod.*, 1830, p. 773; *Euleia*, pt.  
 Walker, *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 1036; *Epidemia*,  
 p. 112, *Myoleja*, p. 112, Rond., *Prodr.*, i, 1856.

*quadrinotata*, Schiner, *Novar. Reise*, 1868, p. 264; *Synon.* *Trypeta*, id. Wiedem.,  
*Anal. Entom.*, p. 55.  
 Hab. India, Nicobars.

*soror*, id. *ibid.*, p. 264.  
 Hab. Batavia.

### Genus PTILONA.

V. d. Wulp, *Tijdschr. v. Entom.*, deel xxiii, 1880, p. 31.

*brevicornis*, id. *ibid.*, p. 33.  
 Hab. Java.

*dunlopi*, id. *ibid.*, p. 34.  
 Hab. Padang.

*notabilis*, id. *ibid.*, p. 35.  
 Hab. Padang.

*sexmaculata*, id., *Sumatra Exped.*, p. 51.  
 Hab. Sumatra.

### Genus SPHENELLA.

Rob. Desv., *Myod.*, 1830, p. 773.

*sinensis*, Schiner, *Novar. Reise*, 1868, p. 267.  
 Hab. Shanghai.

*indica*, id. *ibid.*, p. 267.  
 Hab. Madras.

### Family ULIDIÆ.

J. Bigot, *adhuc inedit.*, 1891; *Ulidini*, pt. Macq., *S. d. Buff. Dipt.*, ii, Paris,  
 1835, p. 496; *Ulidinæ*, Schin., *Faun. Austriac. d. Fliegen*, ii, 1864, p.

1864; Tanipexina, pt. Rond, *Prodr.*, i, 1856, p. 114; Ulidina, Loew, *Monogr. N. American, Dipter.*, 3rd Pt., Washington, 1873, p. 64; Lanza-nidae, pt. Macq., *S. a Buff. Dipt.*, ii, Paris, 1885, p. 506.

### Genus ULIDIA.

Meig., *Syst. Besch.*, v, 1826, p. 385, (et auctor.); Timia, pt. Rond., *Prodr.*, i, 1856, p. 115; Mosillus, pt. Latr.; Chrysomyza, pt. Fallen; Tephritis, pt. Fabr.; Chloria, pt. Schiner, *Faun. Austriac. Diptera*, ii, 1864, p. 85.

*seneca*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, Hamm, 1830, p. 566.  
Hab. India.

*divergens*, Walker, *Ins. Saunders, Dipt.*, i, London, 1856, p. 397.  
Hab. India.

*melanophila*, id., *List. Dipt. Ins. Brit. Mus.*, iv, London, 1849, p. 1058.  
Hab. Bengal.

*fulviceps*, id., *Trans. Ent. Soc.*, London, 1857-60, p. 39.  
Hab. India.

### Genus CHLORIA.

Schiner, *Wien. Entom. Monatschr.*, vi, 1862, p. 151; Ulidia, Tephritis, Chrysomyza, pt. (auctor.).

*clausa*, V. d. Wulp, *Tijdschr. v. Entom.*, deel, xxiii, 1880, p. 28; Synon. Ulidia, id. Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 251.  
Hab. Java.

### Genus CELYPHUS.

Dalman *Vet. Acad. Handl.*, 1818, (et auctor.).

*obtectus*, id., *Anal. Ent.*, p. 32.  
Hab. India, Java, Cochin China, Malacca, Philipp. Is.

*scutatus*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 601.  
Hab. India, Java.

*fuscipes*, Macq., *Dipt. Exot.*, 4th Suppl., Paris, 1850, p. 301.  
Hab. India.

*levis*, V. d. Wulp, *Sumatra Exped.*, p. 53.  
Hab. Sumatra.

### Genus PARACELYPHUS.

J. Bigot, *Rev. et Magaz. Zool. Guérin*, No. 7, 1859, p. 10; Celyphus, pt.

*hyacinthus*, id. *ibid.*  
Hab. Malacca, Cochin China.

## Family SAPROMYZIDÆ.

J. Bigot, *adhuc inedit.*, 1891; Sapromyzides, Fall., *Disc.*, 1820; Scatomyzides, Scyomyzides, pt. (auctor.); Sapromyzina, Schiner, *Faun. Austriacæ* *Dipt.*, ii, 1864, p. 88.

## Genus CÆLOPA.

Meig., *Syst. Besch.*, vi, 1830, p. 194; Copromyza, pt. Fall.; Fucomyia, pt. Halid, *Ann. Nat. Hist.*, ii, p. 186.

*orientalis*, Macq., *Dipt. Exot.*, ii, 3rd Pt., Paris, 1843, p. 266.

Hab. Java.

## Genus LAUXANIA.

Latr., *Dict. Hist. Nat.*, v. 24, 1804; *Gen. Crust. et Ins.*, iv, p. 291; Dolichopus, Sargus, pt. Fabr.; Calliope, pt. Halid.

*diadema*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, ii, Hamm, 1830, p. 661.

Hab. Sumatra.

*rufiventris*, Macq., *Dipt. Exot.*, *Suit. du 2nd Suppl.*, Paris, 1847, p. 68.

Hab. Java.

*nigropunctata*, Thomson, *Fregat. Eugenie's Resa*, 1858-68, p. 566.

Hab. Guam.

*curvinevris*, id. *ibid.*, p. 567.

Hab. China.

*eucera*, Walker, *Journl. Proceed. Linn. Soc., London*, i, 1857, p. 29.

Hab. Singapore, Borneo.

*detersuna*, id. *ibid.*, p. 29.

Hab. Mt. Ophir.

## Family CHYLISIDÆ.

J. Bigot, *adhuc inedit.*, 1891; Chylizina, Rond., *Prodr.*, i, 1856, pp. 25, 122; Psilomyda, p. 416, Loxoceridæ, p. 372, Cordyluridæ, p. 375, pt. Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835; Psilides, pt. Walker; Palomyda, Rob. Desv., pt. Myod., 1830, p. 658; Psilina, Schin., *Faun. Austriacæ die Flieg.*, 2nd Pt., 1864, p. 196.

## Genus CHYLIZA.

Fall., *Dipt. Suec.*, 1860; Dasyna, pt. Rob. Desv., *Myod.*, 1830, p. 667; Megachetum, pt. Rond., *Prodr.*, i, 1856, p. 123.

*histrionica*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., Hamm, 1830, p. 530.

Hab. India.

*calida*, id. *ibid.*, p. 532.

Hab. Sumatra.

*macularis*, id. *ibid.*, p. 531.

Hab. Java.

### Family EPHDRINIDÆ.

J. Bigot, *adhuc ined.*, 1891; Ephdrinidæ, Zetterst., *Dipt. Scandin.*, 1842; Ephdrina, Rond., *Prodr.*, i, 1856, p. 129; Hydromyzidæ, pt. Fall. (et auctor.); Hydrellidæ, p. 783, pt. Rob. Desv., *Myod.*, 1830; Piophilidæ, pt. Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 531; Paralimna, pt. Loew, *Öfvers. Vetensk. Akad. Förhandl.*, xix, 1862, p. 3.

### Genus NOTIPHILA.

Fallen, *Dipter. Suec.*, 1823; Keratocera, pt. Rob. Desv., *Myod.*, 1830, p. 788.

*fasciata*, Wiedem., *Anal. Entom.*, p. 57.

Hab. India.

*albiventris*, id. *ibid.*, p. 589.

Hab. India.

*dorsopunctata*, id. *ibid.*, p. 591.

Hab. India.

*indica*, id. *ibid.*, p. 591.

Hab. India.

*peregrina*, id., *Ausser. Europ. Zweifl. Ins.*, 2nd Pt., Hamm, 1830, p. 592.

Hab. China.

*chinensis*, id. *ibid.*, p. 592.

Hab. China.

*immaculata*, id. *ibid.*, p. 592.

Hab. China.

*sinensis*, (Paralimna? Loew), Schiner, *Novar. Reise*, 1869, p. 241.

Hab. Hong-Kong.

*ciliata*, V. d. Wulp, *Sumatra Exped.*, p. 55.

Hab. Sumatra.

*radiatula*, Thomson, *Fregat. Eugénies Reu.*, Stockholm, 1858-68, p. 505.

Hab. China.

### Genus DRYSO.

Rob. Desv., *Myod.*, 1830, p. 787.

*lispoidea*, id. *ibid.*, p. 787.

Hab. Sumatra.

Genus DISCOMYZA.

Meig., *Syst. Besch.*, vi, 1830, p. 205; *Psilopa*, pt. Fallen.

*pelagica*, Schiner, *Verhandl. K. K. z. b. Gesellsch. Wien.*, xi, p. 451.

Hab. Nicobars.

*punctipennis*, V. d. Wulp, *Sumatra Exped.*, p. 56.

Hab. Sumatra.

Genus OCHTHERA.

Latr., *Hist. Nat. d. Ins.*, vol. 3, 1802; *Gen. Crust. et Ins.*, iv, p. 347; *Macrochira*, pt. Zetterst., *Ins. Japon*, 1840.

*rotundata*, Schin. *Novar. Reise*, 1868, p. 243.

Hab. Nicobars.

Genus GYMNOFA.

Fallen, *Dist.*, 1820, (et auctor); *Eristalis*, pt. Fabr.

*gutticosta*, Walker, *Journl. Proceed. Linn. Soc.*, London, i, 1857, p. 130.

Hab. Borneo.

*infusa*, id. *ibid.*, p. 136.

Hab. Borneo.

Family DROSOPHILIDÆ.

J. Bigot, *adhuc inedit.*; *Geomyzides*, pt. Fall., 1823; *Piophilida*, pt. Macq., *S. à Buff. Dipt.*, ii, *Paris*, 1835, p. 531; *Drosophilina*, pt. Roud., *Prodr.*, i, 1856, p. 133; *Geomyzina*, p. 281, *Drosophilina*, p. 269, *Borborina*, pt., p. 319, Schiner, *Faun. Austriaca D. Flieg.*, ii, 1864; *Trineura*, Meig., *Illig. Magaz.*, ii, 1803, p. 276.

Genus DROSOPHILA.

Fallen, *Dipt. Succ.*, (*Geomyzid.*, pt. l. c., iv, 1823), *Camilla*, Halid., *Curt. Guide*, 1838; *Scaptomyza*, pt. Hald.

*nigriventris*, Macq., *Dipt. Exot.*, ii, 3rd Pt., *Paris*, 1843, p. 259.

Hab. Cochinchina.

*insulana*, Schiner, *Novar. Reise*, 1868, p. 240.

Hab. Nicobars..

*lineata*, V. d. Wulp, *Sumatra Exped.*, p. 57.

Hab. Sumatra.

Genus BORBORUS.

Meig., *Illig. Magaz.*, ii, 1803, p. 276; *Copromyza*, pt. Fallen, (et auctor.)†  
*Sphærocera*, pt., p. 807, *Nereis*, p. 802, *Mysetia*, p. 805, pt. Rob. Desv.,

*Myod.*, 1830; *Crumomyia*, p. 569, *Apterina*, p. 578, *Olinia*, p. 571, pt. Macq., *S. d. Buff. Dipt.*, ii, *Paris*, 1835; *Copromyza*, p. 124, *Apterina*, p. 125, pt. Rond., *Prodr.*, i, 1856.

*punctipennis*, Wiedem., *Anal. Entom.*, p. 59.  
Hab. India.

### Genus TRINEURA.

Meig., *Illig. Magaz.*, ii, 1803, p. 276; *Tephritis*, pt. Fabr.; *Phora*, pt (auctor.); *Philodendria*, pt. Rond., *Prodr.*, i, 1856, p. 136.

*peregrina*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 600.  
Hab. Canton.

### Genus CLASIOPA.

Stenhammar, *Monogr. d. Ephydri*, 1844, p. 251; *Notiphila*, pt. (auctor.); *Dioscerina*, Macq., *S. d. Buff. Dipt.*, ii, *Paris*, 1835, p. 527.

*albitarsis*, V. d. Wulp, *Sumatra Expt.*, p. 56.  
Hab. Sumatra.

### Genus GEOMYZA.

Fallen, *Dipter. Suec.*, 1823; *Tephritis*, pt. Fabr.; *Opomyza*, pt. Meig.

*laticosta*, Thomson, *Fregat. Eugenies Resa, Stockholm*, 1858–68, p. 598.  
Hab. Malacca.

*spuria*, id. *ibid.*, p. 599.  
Hab. China.

### Family CHLOROPIDÆ.

J. Bigot, *adhuc inedit.*, 1891; *Heteromyzides*, *Oscinides*, pt. Fallen, 1820; *Agromyzides*, pt. id., *Diss.*, 1823; *Chloropinæ*, p. 207, *Agromyzinæ*, p. 209, *Borborinæ*, p. 319, pt. Schiner, *Faun. Austriaca d. Fltcj.*, 2nd Pt., 1864; *Heteromyzidæ*, pt. Macq., *S. d. Buff. Dipt.*, ii, *Paris*, 1835, p. 574; *Agromyzina*, pp. 25, 120, *Chilizinæ*, pp. 25, 122, *Capromyzinæ*, pp. 25, 123, *Chloropina*, pp. 26, 125, *Oscinina*, pp. 26, 127, *Ephidrina*, pp. 26, 129; *Asthenina*, pp. 39, 190, pt. Rond., *Prodr.*, i, 1856.

### Genus CHLOROPS.

Meig., *Illig. Magaz.*, ii, 1803, p. 278; *Oscinis*, pt. Fallen (et auctor.); *Tephritis*, pt. Fabr.

*extraneus*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 596.  
Hab. China.

*stiolatus*, id. *ibid.*, p. 597.  
Hab. China.

*confusus*, id. *ibid.*, p. 597.

Hab. China.

*longicornis*, Thomson, *Fregat. Eugenies Resa, Stockholm*, 1858-68, p. 604.

Hab. China.

*nicobarensis*, Schiner, *Reise Fregat. Novara*, 1868, p. 245.

Hab. Nicobars.

### Genus CERAIS.

V. d. Wulp, *Sumatra Exped.*, p. 54.

*magnicornis*, id. *ibid.*, p. 55.

Hab. Sumatra.

### Genus OSCINIS.

Latr., *Diction.*, vol. 24, 1804; *Gen. Crust. et Ins.*, iv, p. 351; Chlorops, pt. Moig.

*insignis*, Thomson, *Fregat. Eugenies Resa, Stockholm*, 1858-68, p. 605.

Hab. China.

*ensifera*, id. *ibid.*, p. 605.

Hab. China.

### Genus HETEROMYZA.

Fallen, *Dipt. Suec.*, 1820; Helomyza, pt. Meig.; Lentiphorn, pt. p. 656, Rob. Desv., *Myod.*, 1830; Heterostoma, pt. Rond., *Prodr.*, i, 1856, p. 104.

*orientalis*, Macq., *Dipt. Exot.*, ii, 3rd Pt., *Paris*, 1835, p. 202.

Hab. Java.

### Genus CÆLOPA.

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• Meig., *Syst. Besch.*, vi, 1830, p. 194; Copromyza, pt. Fall.; Fucomyia, pt. Halid, *Westw. Modern Classif. of Ins.*, 1840.

*orientalis*, Macq., *Dipt. Exot.*, ii, 3rd Pt., *Paris*, 1835, p. 206.

Hab. Java.

### Genus HOMALURA.

Meig., *Syst. Besch.*, v, 1820, p. 186.

*maculipennis*, Wiedem., *Ausser. Europ. Zweiflug. Ins.*, 2nd Pt., *Hamm*, 1830, p. 574.

Hab. India.

### Genus AGROMYZA

Fallen, *Dipter. Suec.*, 1823; Chlorops, pt. Fallen.



*tristella*, Thomson, *Fregat. Eugenies Resa*, Stockholm, 1858-68, p. 609.  
Hab. China.

### Genus EURHINA.

Meig., *Syst. Besch.*, vi, 1830, p. 191.

*albovariegata*, Thomson, *Fregat. Eugenies Resa*, Stockholm, 1858-68, p. 606.  
Hab. Malacca.

### Family PHORIDÆ.

J. Bigot, *adhuc inedit.*; Heteromyzides, Trineurides, Phytomyzides, pt. Fullen; Scaatomyzidæ, pt. *Regn. Anim.*, Hypocera, pt. Latr.; Trineurodæ, pt. Meig., *Syst. Besch.*, vi, 1830, p. 8; Sphaeroceridæ, pt. Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 561; Putrellidæ, pt. p. 796, Rob. Desv., *Myod.*, 1830; Phoridæ, Schiner, *Faun. Austr.*, 2nd Pt., 1864, p. 335; Phoridæ, Rond., *Prodr.*, i, pp. 12-27, 1856; Hypoceridæ, (*olim*), J. Bigot.

### Genus PHORA.

Latr., *Précis*, 1796; Bibio, pt. Fabr.; Trineura, (*olim*), Meig., *Klassif.*, 1804, id. Zetterst., *Dipt. Scand.*, Conicera, Meig., *Syst. Besch.*, vi, Hamn, 1830, p. 226; Motopina, pt. Macq., *S. à Buff. Dipt.*, ii, *Suppl.*, Paris, 1835, p. 606.

*sinensis*, Schiner, *Novar. Reise*, 1868, p. 224.  
Hab. China.

*orientalis*, id. *ibid.*, p. 224.  
Hab. Kondul.

*oleghorni*, J. Bigot, *Indian Economic. Entomol.*, vol. i, 1890, p. 191.  
Hab. Bengal.

### ANOMALOCERATI.

J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 225, etc.; Pupipara, Nitzsch, *German Magaz.*, ii, 1818; Hippoboscidæ, p. 644, Schiner, *Faun. Austriac. d. Flieg.*, 2nd Pt., 1864, et Nycteribidæ, id. *ibid.*, p. 650; Leach, *Mem. Wern. Soc.*, 1817; Coriacea, Latr., *H. Nat. Ins.*, 1802, id. Macq., *S. à Buff. Dipt.*, ii, Paris, 1835, p. 634; Phthiromyia, Latr., *H. Nat. Ins.*, iv, 1800; Hippoboscidæ, Nycteribidæ, Streblidæ, pt. Rondani, *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1873; Phthiridium, pt. Hermann, 1804; Cryptocores, (*olim*, 1852), Zoobiæ, Melitobiæ, Nycteribidæ pt. Streblidi, Zoobidi, pt. J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 230, etc.

### Family ZOOBIDÆ, (Zoobidi).

J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 232.

Genus POLYCTENES.

Waterhouse, *Trans. Ent. Soc.*, iv, London, 1879, p. 311.

*lyras*, id. *ibid.*, p. 311.

Hab. Madras.

*spasmas*, id. *ibid.*, p. 312.

Hab. Java.

Genus MYOPHTHIRIA.

Rond., *Ann. d. Mus. Civic. d. Stor. Nat. d. Genova*, 1875, p. 464.

*reduvioides*, id. *ibid.*, p. 464.

Hab. Borneo.

Genus ORNITHOMYIA.

Latr., *H. Nat. Crust. Ins.*, iii, 1802; Hippobosca, pt. Linn. (et auctor.).

*nigricans*, Leach, *Eprobosc. Ins.*, p. 12.

Hab. Bengal, Sumatra.

*columbae*, Wiedem., *Anal. Entom.*, p. 60.

Hab. Java.

*javana*, Jaennicke, *N. Exot. Diptor.*, Frankfort, 1867, p. 98.

Hab. Java.

Genus HIPPOBOSCA.

Linn., *Faun. Succ.*, 1781, p. 471; Nirmomyia, pt. Nitzsch.; Zomyia, J.

Bigot, *Ann. Soc. Ent. France*, 1885.

*siva*, J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 235.

Hab. India.

*calopsets*, id. *ibid.*, p. 236.

Hab. Ceylon.

*variegata*, Wiedem., *Ausser. Europ. Zuccijug. Ins.*, 2nd Pt., 1830, p. 603.

Hab. India.

*francilloni*, Leach, *Eprobosc. Ins.*, p. 8.

Hab. Bengal; Africa.

Genus OLFERSIA.

Leach, *Edimb. Encyclop.*, xi, 1819, (et auctor.); Feronia, pt. Leach; Ornithomyia, Rond., *Bullet. d. Soc. Ital.*, xi, p. 3; Nirmomyia, pt. Nittsch.

*longipalpis*, Macq., *S. d. Buff. Dipt.*, ii, Paris, 1835, p. 640.

Hab. Java.

*spinifer*, Leach, *Dyob. Ins.*, p. 11; Synon. *Feronia*, id. (V. Wiedem., *Ausser. Europ. Zweiflup. Ins.*, 2nd Pt., Hamm, 1830, p. 607; et Schiner, *Novar. Reise*, 1868, p. 373).  
Hab. Batavia, Cape of Good Hope?

### Family STREBLIDÆ, (Streblidi).

J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 231; Streblidæ, pt. Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1878, p. 166.

### Genus RAYMONDIA.

Frauenfeld., *Wien Akad. Gitsber.*, xviii, 1856, p. 320.

*kollari*, id. *ibid.*, p. 330. •

Hab. Madras.

*huberi*, id. *ibid.*, p. 331.

Hab. Madras.

### Family NYCTERIBIDÆ, (Nycterilidi).

J. Bigot, *Ann. Soc. Ent. France*, 1885, p. 235; (Nycteribine, id., *olim*),  
Nycteribidæ, Leach, *Mem. Wern. Soc.*, 1817; Nycteribidæ, Schiner,  
*Fauna Austriaca d. Flieg.*, 2nd Pt., 1864, p. 650.

### Genus NYCTERIBIA.

Latr., *II. Nat. Crust. et Ins.*, 1803, vol. iv, p. 364; *Acarus*, pt. Linn.; *Hippobosca*, pt. Voigt.; *Phthiridium* pt. Hermann; *Celeripes*, pt. Montaign,  
*Linn. Trans.*, ix, 1808.

*sykesii*, Wesw., *On Nycteribia*, *Trans. of Zool. Soc., London*, 1834, p. 288.

Hab. India.

*hopel*, id. *ibid.*, p. 289.

Hab. Bengal.

*roylii*, id. *ibid.*, p. 290.

Hab. India.

*jenynsii*, id. *ibid.*, p. 291.

Hab. India, Ceylon, Amboina, Sumatra.

*minuta*, V. d. Wulp, *Sumatra Exped.*, p. 58.

Hab. Sumatra.

*ferrarii*, Rond., *Ann. d. Mus. Civ. d. Stor. Nat. d. Genova*, 1878, p. 156.

Hab. Java..

# JOURNAL

OF THE

## ASIATIC SOCIETY OF BENGAL.

### Part II.—NATURAL SCIENCE.

No. III.—1892.

I.—*Note on the Indian Butterflies comprised in the subgenus Pademna of the genus Euploca*:—By LIONEL DE NICEVILLE, F. E. S., C. M. Z. S.

[Received August 15th ;—Read November 2nd, 1892.]

In the August Proceedings of the Society, p. 158 will be found a note on the subgenus *Stictophea*, mainly based on material received from the Rev. Walter A. Hamilton and collected in the Khasi Hills. The present note owes its origin to the same source, over 200 specimens of *Pademna* having been sent to me from that region by Mr. Hamilton. The subgenus *Pademna* occurs in Ceylon, South India, Bengal as far west as Maldah, the lower slopes of the Sikkim hills, Bhutan, Assam, Burma, the Malay Peninsula, Siam, Cochin China, Nias Island, and Hainan. Its headquarters appears to be Assam and Burma (especially the former), where it may be said to swarm; everywhere else it is comparatively rare, except perhaps in Calcutta, where *E. kollari*, Felder, may be met with in considerable numbers if looked for in the right places and at the right seasons of the year.

The subgenus as represented in Ceylon, South India, Orissa, Bengal (usually), and in parts of Burma and in the Malay Peninsula, presents the curious phenomenon that the several species are in both sexes entirely, or but slightly, on the upperside of the wings, more especially

the forewing, unglossed with blue; but in some parts of Bengál (Maldah), and in Sikkim, specimens are met with which are either entirely unglossed, or partly glossed with blue, towards the base of the wing, while in Assam, Arakan and Pegu the whole of the forewing is usually most richly blue-glossed. This phenomenon may be due to mimicry, as in the Khasi Hills of Assam, where *Pademmas* are individually most numerous, *Euploea midamus*, Linnaeus (*linnei*, Moore), is also exceedingly common, and the *Pademmas* probably mimic it or some other blue-glossed species. The only thing to be said against this theory is that in Maldah where many specimens are most distinctly glossed with blue there are no other blue *Euploea*s which these *Pademmas* could mimic; the occurrence of these latter in Maldah may, however, be due to immigration.

The next point to be dealt with is the extraordinary variability of the subgenus. The species which is found in Ceylon (*E. sinhalæ*, Moore) appears to be quite constant, as do specimens of *E. kollari*, Felder, received from South India, the Eastern and Western Ghâts, Orissa, and Calcutta. But directly the hills are approached, at Maldah north of the Ganges and at the foot of the Sikkim hills, the species commences to vary and to approach *E. klugii*, Moore, both as regards the presence of a more or less well-marked blue gloss, and in the acquisition of discal markings to the forewing. But for these intermediate specimens, *E. kollari* might be considered to be a good and constant species, but, as it is, in certain parts of north-eastern India it is distinctly variable. As we proceed to the eastwards, in Bhutan, Assam, and the northern and middle divisions of Burma (Arakan and Pegu), blue-glossed species mainly prevail, though occasionally specimens almost as free from the gloss as is *E. kollari* are met with. Lastly, in the southernmost division of Burma (Tenasserim) the blue-glossed species have almost disappeared, being as rare as unglossed are in Assam, and are replaced by unglossed species which differ in the character of the markings from the continental Indian species, *E. kollari*. In the Malay Peninsula *Pademmas* are very rare, and are of the Tenasserim form. To a certain extent, therefore, we can divide up the Indian *Pademmas* into more or less well-defined geographical races, which, were they only constant each in its own region, might be retained as distinct species. But this is not entirely so. *E. kollari* gradually merges into *E. klugii* in Maldah and the lower slopes of the Sikkim Hills, and *E. klugii* equally gradually grades into *E. erichsonii*, Felder, in Arakan. In their respective headquarters the two extreme forms are perfectly constant and recognisable at a glance, *E. kollari* from any part of India south of the Ganges, and *E. erichsonii* from Lower Tenasserim or the Malay Peninsula. On the border-lands between these regions the several species are no longer

reliably distinct, and in the Khasi Hills, which may be said to be the head-quarters of the *Pademnas*, as there they exist in the greatest number of individuals, a bewildering multiplicity of various forms is met with. Messrs. Butler and Moore, but especially the latter, have described a great number of these quite inconstant forms as distinct species, and the present writer with the material at his disposal, could if desired, easily describe a dozen more such species, many of them far more distinct in superficial appearance than several of Messrs. Moore and Butler's. It appears to him that the only way to deal satisfactorily with these puzzling species is to treat all of them (except *E. sinhalæ* which appears to be constant owing to its insular habitat) as geographical races of the earliest described *E. klugii*. To this end he has given below the full synonymy of the various forms and a brief description of them.

I must once more enter my protest against the erroneous views held by some naturalists on the variability of these species. Messrs. Wood-Mason, Marshall, Distant, Elwes, Adamson, Doherty, Watson, and I, all of whom know these insects in life and have lived amongst them, have written page upon page to shew how inconstant they are, yet Mr. Moore, who has never been in the East, in his latest work on butterflies ("Lepidoptera Indica"), admits eight distinct species, and eight named "Varieties" of *Pademna*, all but one of the latter of which he described as good and distinct species in 1883. When a species is obviously so extremely variable as *E. klugii*, it can be of no possible scientific use to have names for every possible combination and permutation of the blue-glossing of the upperside and of the disposition of the markings of both sides of the wings. These variations are obviously mainly individual, and from the same batch of eggs it is almost certain that several at least of these variations would be obtained were they carefully bred. It is, however, of great scientific use to make out the range and to describe the peculiarities of geographical races when these are constant and sufficiently well-marked for definition each in its own area, but this Mr. Moore never makes the slightest attempt to do. It is hoped that what has been here written will tend to this desirable result.

I might also mention to shew the absurdity of the views expressed by Mr. Moore in his Monograph of *Euploea* written in 1883, in which seventeen distinct species of *Pademna* are given from India,--that I sent to him, just after the appearance of that paper, 12 very variable specimens of *Pademna* captured in the Arakan Hills, out of which he could only name three. The inference was that the other nine specimens represented as many "new species."

1. *EUPLOEA (PADEMNA) SINHALA*, Moore.

*Euploea sinhala*, Moore, Ann. and Mag. of Nat. Hist., fourth series, vol. xx, p. 45 (1877); id. (part), Marshall and de Nicéville, Butt. of India, vol. i, p. 66, n. 47 (1882); *Isamia sinhala*, Moore, Lep. Cey., vol. i, p. 10, pl. v, fig. 1, male (1880); *Pademna sinhala*, Moore, Proc. Zool. Soc. Lond., 1883, p. 309, n. 18; idem, id., Lep. Ind., vol. i, p. 126, pl. xlvii, figs. 3, male; 3a, female (1890).

HABITAT: Ceylon.

EXPANSE: ♂, ♀, 3.25 to 3.85 inches.

DESCRIPTION: MALE. UPPERSIDE, *both wings* dark olive-brown. *Forewing* with the outer marginal area broadly much paler than the rest of the wing, bearing in the middle of the pale area a series of from six to eight small ochreous-white spots, the one in the first median interspace the largest, often two in the submedian interspace; a marginal series of dots variable in number, but usually four, commencing at the anal angle and never reaching the apex of the wing; the usual oval sexual brand in the submedian interspace. *Hindwing* with the outer margin paler than the rest of the wing, but less markedly so than in the forewing; the usual flour-like sexual patch about the anterior area of the discoidal cell; a submarginal series of twelve ochreous-white spots, the four anterior ones round, decreasing in size towards the costa, placed one in each interspace, the posterior ones elongated into streaks, placed two in each interspace; an almost complete marginal series of dots much larger than those in the forewing, not quite reaching the apex of the wing, placed in pairs in the interspaces. UNDERSIDE, *both wings* paler olive-brown than on the upperside. *Forewing* somewhat darker in the middle of the disc; a costal spot placed between the bases of the first and second subcostal nervules; discal spots placed beyond the cell varying from two to four, the lowermost spot in the submedian interspace the largest, all these spots bluish-white; submarginal and marginal series of spots as on the upperside, but the latter more numerous; inner margin of the wing up to the first median nervule cinereous; the sexual brand black and prominent. *Hindwing* with none, one, or two discal spots placed just beyond the cell; submarginal and marginal spots as on the upperside. FEMALE, rather paler than the male throughout, lacking all the secondary sexual characters, and having the inner margin of the forewing straight, not strongly outwardly bowed. UNDERSIDE, *forewing* has the inner margin cinereous as far as the submedian fold.

*E. sinhala* occurs only in Ceylon, and is, for an *Euploea* of this group, owing to its insular position, fairly constant.

2. *EUPLOEA (PADEMNA) KLUGII*, Moore.

*Euploea klugii*, Moore, Horsfield and Moore, Cat. Lep. Mus. B. I. C., vol. i, p. 120,

n. 258 (1857); idem, id., Anderson, Anat. and Zool. Researches, p. 223 (1878); id., Marshall and de Nicéville, Butt. of Ind., vol. i, p. 64, n. 44 (1882); id., Adamson, Notes on the *Danaïnae* of Burmah, p. 8 (1889); idem, id., Cat. of Butt. coll. in Burmah, p. 4, n. 20 (1889); id., Watson, Journ. Bomb. Nat. Hist. Soc., vol. vi, p. 29, n. 8 (1891); *Salpinctes klugii*, Butler, Journ. Linn. Soc. Lond., Zoology, vol. xiv, p. 294, n. 35 (1878); *E. (Pademna) klugii*, Wood-Mason and de Nicéville, Journ. A. S. B., vol. iv, pt. 2, p. 346, n. 10 (1886); *Pademna klugii*, Moore, Lep. Ind., vol. i, p. 117, pl. xlii, figs. 1, male; 1a, female; 1b, female (type of *E. grantii*) (1890); *Pademna klugi*, Moore, Proc. Zool. Soc. Lond., 1883, p. 305, n. 1, pl. xxxii, fig. 1, male; *Euplaea (Pademna) klugi*, Elwes, Trans. Ent. Soc. Lond., 1888, p. 300, n. 9; *Euplaea erichsonii*, Felder, Reise Novara, Lep., vol. ii, p. 323, n. 444 (1866); id., Marshall and de Nicéville, Butt. of India, vol. i, p. 63, n. 42 (1882); id., Watson, Journ. Bomb. Nat. Hist. Soc., vol. iii, p. 18, n. 13 (1888); id., Adamson, Cat. of Butt. coll. in Burmah, p. 4, n. 18 (1889); id., Watson, Journ. Bomb. Nat. Hist. Soc., vol. vi, p. 29, n. 7 (1891); id., Shopland, Butt. coll. in Aracan, p. 4; *Euplaea (Pademna) erichsonii*, Wood-Mason and de Nicéville, Journ. A. S. B., vol. iv, pt. 2, p. 347, n. 11 (1886); id., Elwes and de Nicéville, Journ. A. S. B., vol. iv, pt. 2, p. 415, n. 7 (1886); *Salpinctes erichsonii*, Butler, Journ. Linn. Soc. Lond., Zoology, vol. xiv, p. 295, n. 39 (1878); *Pademna erichsonii*, Moore, Journ. Linn. Soc. Lond., Zoology, vol. xxi, p. 31 (1886); *Pademna erichsoni*, Moore, Proc. Zool. Soc. Lond., 1883, p. 307, n. 11; *Euplaea erichsoni*, Adamson, Notes on *Danaïnae* of Burmah, p. 7 (1880); *Euplaea kollari*, Felder, Reise Novara, Lep., vol. ii, p. 325, n. 445 (1866); *Pademna kollari*, Moore, Proc. Zool. Soc. Lond., 1883, p. 309, n. 19, pl. xxi, fig. 9, male; id., Swinhoe, Proc. Zool. Soc. Lond., 1885, p. 126, n. 8; id., Hampson, Journ. A. S. B., vol. lvii, pt. 2, p. 348, n. 8; id., Moore, Lep. Ind., vol. i, p. 124, pl. xlvii, figs. 2, male; 2a, female (1890); *E. (Pademna) kollari*, de Nicéville, Journ. A. S. B., vol. liv, pt. 2, p. 41, n. 8 (1885); id., Taylor, List of the Butt. of Khorda in Orissa, p. 1, n. 8 (1888); id., Elwes, Trans. Ent. Soc. Lond., 1888, p. 301, n. 10; id., Ferguson, Journ. Bomb. Nat. Hist. Soc., vol. vi, p. 435, n. 9 (1891); *Euplaea crassa*, Butler, Proc. Zool. Soc. Lond., 1866, p. 278, n. 31; id., Distant, Rhop. Malay., p. 29, n. 9, pl. v, fig. 8, male (1882); p. 410, n. 9 (1886); id., Marshall and de Nicéville, Butt. of India, vol. i, p. 63, n. 41 (1882); id., Watson, Journ. Bomb. Nat. Hist. Soc., vol. iii, p. 18, n. 12 (1888); id., Adamson, Cat. of Butt. coll. in Burmah, p. 4, n. 17 (1889); idem, id., Notes on *Danaïnae* of Burmah, p. 7 (1889); id., Shopland, Butt. coll. in Aracan, p. 4; *Salpinctes crassa*, Butler, Journ. Linn. Soc. Lond., Zoology, vol. xiv, p. 295, n. 38 (1878); id., Moore, Proc. Zool. Soc. Lond., 1878, p. 322; *Pademna crassa*, Moore, Proc. Zool. Soc. Lond., 1883, p. 307, n. 9; idem, id., Lep. Ind., vol. i, p. 121, pl. xlv, figs. 2, male; 2a, female (1890); *Salpinctes illustris*, Butler, Journ. Linn. Soc. Lond., Zoology, vol. xiv, p. 294, n. 36 (1878); *Euplaea illustris*, Marshall and de Nicéville, Butt. of India, vol. i, p. 66, n. 46 (1882); id., Shopland, Butt. coll. in Aracan, p. 4; *Pademna illustris*, Moore, Proc. Zool. Soc. Lond., 1883, p. 307, n. 7; idem, id., Lep. Ind., vol. i, p. 119, pl. xliii, figs. 1, male; 1a, female (1890); *Salpinctes masoni*, Moore, Proc. Zool. Soc. Lond., 1878, p. 323; *Euplaea masoni*, Marshall and de Nicéville, Butt. of India, vol. i, p. 64, n. 43 (1882); id., Adamson, Cat. of Butt. coll. in Burmah, p. 4, n. 19 (1889); id., Notes on *Danaïnae* of Burmah, p. 7 (1889); *Pademna masoni*, Moore, Proc. Zool. Soc. Lond., 1883, p. 309, n. 17; idem, id., Lep. Ind., vol. i, p. 123, pl. xlv, fig. 1, male (1890); *Salpinctes grantii*, Butler, Trans. Ent. Soc. Lond., 1879, p. 2; *Euplaea grantii*, Marshall and de Nicéville, Butt. of India, vol. i, p. 65, n. 45 (1882); id., Adamson, Cat. of Butt. coll. in Burmah, p. 4 (1889); id., Shopland, Butt. coll. in Aracan, p. 4; *Pademna granti*, Moore,



Proc. Zool. Soc. Lond., 1883, p. 306, n. 2; *Isamia rothneyi*, Moore, Ent. Month. Mag., vol. xix, p. 34 (1882); *Euplœa sinhala* (part, nec Moore), Marshall and de Nicéville, Butt. of India, vol. i, p. 66, n. 47, pl. vii, fig. 12, male and female (1882); *Pademmma dharmma*, Moore, Proc. Zool. Soc. Lond., 1883, p. 306, n. 3, pl. xxxii, fig. 2, female; *Pademmma augusta*, Moore, Proc. Zool. Soc. Lond., 1883, p. 306, n. 4; idem, id., Lep. Ind., vol. i, p. 118, pl. xlii, figs. 2, male; 2a, female (1890); *Pademmma indigofera*, Moore, Proc. Zool. Soc. Lond., 1883, p. 306, n. 5, pl. xxxii, fig. 3, male; idem, id., Lep. Ind., vol. i, p. 120, pl. xlii, fig. 3, male (1890); *Pademmma imperialis*, Moore, Proc. Zool. Soc. Lond., 1883, p. 307, n. 6; idem, id., Lep. Ind., vol. i, p. 119, pl. xliii, figs. 2, male; 2a, female (1890); *Pademmma regalis*, Moore, Proc. Zool. Soc. Lond., 1883, p. 307, n. 6; idem, id., Lep. Ind., vol. i, p. 119, pl. xlii, figs. 1, male; 1a, female (1890); *Pademmma pembertonii*, Moore, Proc. Zool. Soc. Lond., 1883, p. 308, n. 12, pl. xxxii, fig. 6, male; idem, id., Lep. Ind., vol. i, p. 124, pl. xlii, figs. 3, male; 3a, female (1890); *Pademmma maclellandi*, Moore, Proc. Zool. Soc. Lond., 1883, p. 308, n. 13, pl. xxxii, fig. 4, female; idem, id., Lep. Ind., vol. i, p. 120, pl. xlii, figs. 2, male; 2a, female (1890); *Pademmma uniformis*, Moore, Proc. Zool. Soc. Lond., 1883, p. 308, n. 14; idem, id., Lep. Ind., vol. i, p. 124, pl. xlii, fig. 1, male (1890); *Pademmma apicalis*, Moore, Proc. Zool. Soc. Lond., 1883, p. 303, n. 15; idem, id., Lep. Ind., vol. i, p. 123, pl. xlii, figs. 2, male; 2a, female (1890); *Euplœa apicalis*, Shopland, Butt. coll. in Aracan, p. 4; *Pademmma burmeisteri*, Moore, Proc. Zool. Soc. Lond., 1883, p. 309, n. 16; idem, id., Lep. Ind., vol. i, p. 123, pl. xlii, figs. 3, male; 3a, female (1890); *Pademmma shervillii*, Moore, Lep. Ind., vol. i, p. 120, pl. xlii, fig. 1, male (1890).

Geographical race *E. kollari*, Felder.

HABITAT: South India, Orissa, Bengal, lower slopes of the Sikkim Hills.

EXPANSE: ♂, 3.3 to 4.1; ♀, 3.7 to 4.1 inches.

DESCRIPTION: MALE and FEMALE. Differs only from *E. sinhala*, Moore, in the marginal spots of the forewing on both sides being rather larger and reaching the apex of the wing usually; the submarginal series also rather larger. In all other respects as in *E. sinhala*.

It is rather stretching a point to admit *E. kollari* as distinct from *E. sinhala*, but as the differences noted above appear to be constant and are just recognisable, I have thought it best to separate them.

Except in Bengal, where *E. kollari* is found in the Sikkim terai and on the lower outer slopes of the Sikkim hills and in Maldah, it appears to be confined to the littoral, the furthest point from the coast where I have any record of its occurrence being Poona, about 70 miles in a straight line from the sea, and Bhadrachalam, on the Godavari, Madras, which is about 100. Neither is it found in the hills except at the lower elevations up to about 2,000 feet, save in the Nilgiris, where Mr. Hampson took it at 3,500 feet elevation. In South India, Orissa and Bengal (with some exceptions) the species is quite constant, it is only at Bholahat in the Maldah district and on the lower slopes of the Sikkim hills and in

the Sikkim terai that the species begins to vary, acquiring a more or less well-marked blue gloss on the upperside of the wings, and some discal spots on the forewing, which leads us to the typical form of the species.

Typical form *E. klugii*, Moore.

HABITAT: Maldah, lower slopes of the Sikkim Hills, Bhutan, Assam, Arakan, Pegu.

EXPANSE: ♂, 3·5 to 4·0; ♀, 3·0 to 4·2 inches.

DESCRIPTION: MALE. UPPERSIDE. [Of all the species of *Euploea* known to me this is the most variable. Following the order of the *Pademna* group here adopted, the varieties which most nearly resemble *E. kollari* are first described, while the true *E. klugii*, which is the most divergent form in one direction, is next described, and lastly those variations are described which lead up to the geographical race *E. erichsonii*, Felder, which ends the series.] A specimen from Sikkim in my collection agrees absolutely with typical *E. sinhalu*, Moore, from Ceylon, except that the base of the forewing on the upperside in some lights is slightly blue-glossed; other Sikkim specimens I possess have the submarginal and marginal spots to both wings rather smaller than in typical *E. kollari*, while others again are normal in this respect, both the latter forms being slightly blue-glossed. In the next gradation the dark basal area of the forewing on the upperside is less well marked, and extends more towards the outer margin, while the first discal spots divided by the lower discoidal nervule have appeared; these varieties occurring in Sikkim, Assam, and Arakan, but always sparingly. In the next group, which includes the typical *E. klugii*, it is quite impossible to describe within reasonable limits all the variations which occur. The dark basal area now gradually disappears altogether, the blue-glossing becomes more and more intense till it reaches its maximum, the spots of the wings are infinitely variable—in some there are the two marginal series only, in some one or both these series are obsolete on the hindwing, in some the marginal series is confined in the forewing to a few at the anal angle, or are absent altogether, while the submarginal series are sometimes reduced from the full number of nine to four more dots towards the apex; the discal spots vary from a complete series of four to none at all; while in some specimens there is a large spot at the end of the discoidal cell, in others a small spot, and in others again no spot at all; the colour of the spots also varies, some are pure white, others strongly glossed with blue; there is sometimes a costal spot at the base of the first and second subcostal nervules, this being frequently absent. On the hindwing some specimens are richly blue-glossed on the disc, while

others are not glossed at all; some are rich chestnut-coloured towards the abdominal margin, this colour also being found in some examples on the bowed-out inner margin of the forewing. **UNDERSIDE.** The variations of the spots on both wings described above as found on the upper side of the wings are also found on the underside, though to a less extent. **FEMALE** varies in precisely the same way as does the male. The variations noted above are found throughout the range of the typical form, but they reach their maximum development in the Kanchi Hills, where I have been able to accurately match the following species figured in Moore's "Lepidoptera Indica"—*E. klugii*, *E. augusta*, *E. illustis*, *E. imperialis*, *E. regalis*, *E. maclellandi*, *E. indigofera*, *E. sherrillii*, and *E. uniformis*.

Geographical race *E. erichsonii*, Felder.

**HABITAT:** [Maldah, one female; Cachar, one female], Arakan, Pegu, Tenasserim, Malay Peninsula, Siam, Cochin China.

**EXPANSE:** ♂, 32 to 40; ♀, 37 to 41 inches.

**DESCRIPTION: MALE. UPPERSIDE.** [Still continuing the same order of the *Pademna* group, I first take up the description of the varieties most nearly approaching the last geographical race.] The connecting link between the *E. klugii* race and the one now under consideration is *E. masoni*, Moore, which has the basal area of the forewing on the upperside glossed with bright violet-blue, which character typically connects this race with *E. kollari*, Felder, from which, however, it may be distinguished by the submarginal series of spots gradually increasing in size from the anal angle till the one in the subcostal interspace is reached, then again rapidly decreasing to the costa. But for this single character it would, I think, be quite impossible to separate some forms of *E. erichsonii* from *E. kollari*. This geographical race is not as variable as the last, though it is still very variable, Mr. Moore placing in it *E. crassa* (= *E. erichsonii*), *E. burmeisteri*, *E. masoni*, *E. apicalis*, and *E. penobertonii*. The spots on both wings are almost as variable as in *E. klugii*, except that the discal spots of the forewing never exceed two in number and are usually absent altogether, and I have seen no specimen with a spot in the discoidal cell. **FEMALE**, markings throughout similar to those of the male.

The two female specimens, one each from Maldah and Cachar, mentioned under habitat above, quite upset the otherwise fairly well-defined geographical distribution of this local race. These two specimens both possess the submarginal series of spots on the forewing of the typical shape of *E. erichsonii*, so I am reluctantly obliged to include them under this race. I have other aberrant male specimens from Arakan which I

have placed under *E. klugii*, as they are very richly blue-glossed at the base of the forewing, and have a large spot in the discoidal cell, but the submarginal spots are typically those of *E. erichsonii*, so these specimens have two characters of *E. klugii* and one of *E. erichsonii*. The two races overlap in Arakan and Pegu, and many specimens from thence are almost intermediate between the two local races, so that the placing them in one or the other is purely arbitrary.

I have taken great pains to try and define the three geographical races of *E. klugii* which at most can be admitted, but now that I have finished the task, I am almost of opinion that it would have been more philosophical and scientific to have dealt with the very large series of specimens I possess as one species in the way in which I treated *E. (Stictoplexa) harrisii*, Felder. There is no doubt, however, that *E. kollari* is constant in certain localities, as also is *E. erichsonii* in other localities, these being the two extremes of the series, just in the same way that *E. harrisii* and *E. hopei* are as distinct in their respective head-quarters, it is only when one comes to consider the intermediate forms which occur in a region geographically intermediate between the two extreme forms, that it is found that the constancy of all the forms immediately breaks down. To deal with species like these it is imperatively necessary to have very extensive series of specimens from all the localities in which they occur, and also to act up to the spirit of the theory of evolution which nearly all naturalists profess to believe in, but some naturalists entirely ignore in their writings when describing different species of animals. If my individual opinions and conclusions be not accepted, I beg that reference be made to the writings of the competent field-naturalists who have studied these butterflies in life. It is needless here to recapitulate what they have recorded: reference to those papers is in all cases given in the synonymy of *E. klugii*.

There is still another point I may mention. Perhaps of all the oriental butterflies, *Euplexa* are, where they occur at all, amongst the most commonly met with, conspicuous, and most easily captured of insects. They are so obviously protected that they float about in the air in the quietest manner and seem to court attention, and moreover are always, or nearly so, the commonest of butterflies. So well has the Indian region been explored that I should almost as soon expect to find a new "Cabbage-White" in a London square as a new *Euplexa* in any part of India; and it is to be hoped that no more "new species" will be described from India unless they are obviously quite different from any hitherto known species. Doubtless from unexplored regions and islands many new species yet remain to be described, but certainly there are none from India.

*The Communal Barracks of Primitive Races.*—By S. E. PEAL, Esq.  
Plates I and II.

[Received . . . ; Read November 2].

Among the many social problems relating to the early history of our race which at the present day engage the attention of anthropologists, there are probably few which surpass in interest that of the origin of "Marriage."

The institution of the "family," with its attendant maternal and paternal duties, is so closely interwoven with all human history and customs that it is generally, and perhaps with some reason, taken to have been the normal form of development from the very first.

But in these days when the doctrine of evolution has taken so firm hold of the scientific world, it is hardly necessary to point out that sooner or later, we may have to reconsider the entire question in the light of recent discoveries.

In our endeavour to unravel the earlier phases of social life we naturally look amongst the more savage races for traces of the actual condition of our ancestors, piecing together slowly and carefully the relics of customs still surviving here and there, which may be thrown light on this obscure and difficult question, drawing from such deductions as experience teaches may be safe and legitimate.

From a careful study of the evidence recently accumulated, there can be little doubt that very much has yet to be learnt regarding earlier forms of sexual relation.

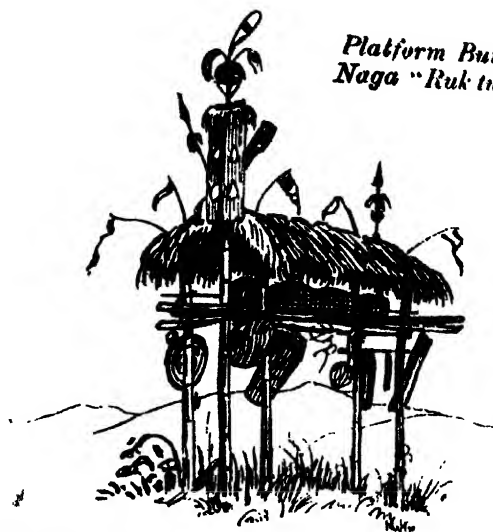
MacLennan, to whom we owe so much on the question of "Early marriage," has endeavoured to show that "marriage by capture" probably arose from paucity of females, due to infanticide, and that early some form of monogamy had always existed, but more recent evidence seems to show that Sir John Lubbock's view is more probably correct, i. e., that while marriage, or the private right of one particular woman by any man, arose by capture, this early social development was possibly preceded by one of complete promiscuity, as in a horde.

The relics of such a stage of sexual communism seem to be more extensively among savage and semi-civilized races in those regions which is generally supposed, especially in the Indo-Pacific and other regions, and the object of the present note is to draw attention to the large stores of information on this question already in our hands but so far unutilized.

Letourneau, in his "*Evolution of Marriage*," in the concluding volume series, has exhaustively traced for us the earlier stages of

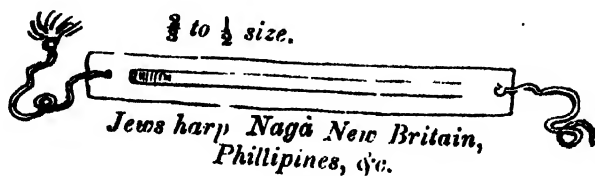






*Platform Burial.  
Naga "Ruk tua."*

*Formosa, Borneo, Papua, Solomon Is. and  
Aru Is., Marquesas, pts. of Africa & Australia,  
often as a canoe on posts.*



$\frac{3}{4}$  to  $\frac{1}{2}$  size.

*Jews harp Naga New Britain,  
Phillipines, &c.*



*Naga Tung Kung.*

*Canoe Drum, can be heard at 8 & 10 miles.  
Tavaka of New Hebrides. Lali of Fiji.*

*S. E. Peal.*





"marriage and the family" amongst the lower animals, showing conclusively that they are by no means peculiarly human institutions.

The various and singular forms of sexual association, past and present, he has also clearly laid before us, though singularly enough entirely omitting one which is of the utmost importance, and to which it is desirable to draw attention. The omission is in regard to the peculiar institution of barracks for the unmarried, which under so many surviving forms, and endless names, extends from the Himalaya and Formosa on the north, to New Zealand and Australia on the south; from eastern Polynesia, to the west coast of Africa.

One of the first things to strike the student who is fairly well acquainted with the head-hunting and semi-savage races of the north-eastern frontier of Bengal, on reading travels in the Malayo-Pacific Archipelago, is the similarity, and at times identity, of so many singular customs over this widely scattered region.

Not only do we find, as Sir Henry Yule pointed out in the *Journal of the Anthropological Institute* for February 1880, that head-hunting, pile-dwelling, blackening the teeth, aversion to milk, "jhuming," and barracks for the unmarried, extend from India to New Guinea and other places, but that when the matter is carefully looked into, quite a large number of other singular customs come into view, and that the area over which these customs prevail, extends over a far larger part of the earth's surface than Sir Henry Yule had suspected.

Taken by itself this institution of organized "barracks for the unmarried," is sufficiently suggestive; but when we notice that it is only one of many peculiar social customs, which survive more or less with it, among widely scattered races, the case is doubly noteworthy; first as a proof of former racial affinity among all these people, and secondly, as a most important and suggestive factor in social evolution generally.

Their sociological significance it is the more necessary to study as they are so obviously survivals; and under modified forms are seen amongst Indo-Mongols, Dravidians and Kols, Malays, Papuans, Polynesians, Australians, and African races.

For some years past racial affinity has been suspected among these now distant races, and in these communal barracks we seem to have a clear proof that the "survival of the fittest" among human customs may long outlast both physical and linguistic variation.

As might naturally be expected, with customs handed down from a remote antiquity, among various races, there has been a large amount of local geographical variation, and in some instances the subsidiary customs have died out entirely.

Thus "jhuming" which so strongly differentiates all these, from Aryan races, is not found among the nomadic Australians. Cannibalism again, which at one time was probably universal, has died out in most cases, or survives in the passion for "head-hunting" in several.

The building of houses on piles is another singular habit which persists among many widely scattered groups, and that it is a survival and not locally spontaneous, is beautifully demonstrated by the "araiba" or extension of the platform floor, beyond the end of the roof, which is characteristic of Indo-Mongols, Bornceans, Papuans, the dwellers in the Phillipines, and other widely-scattered people.

The platform burial, common around Assam, is also seen in New Guinea, Bornoo, Formosa, Sumatra, &c.

The vertical double cylinder bellows, seen all over our north-eastern frontier as far as the Lutze, (Anong) turns up again in Nias off Sumatra, in the Kó Islands, North Australia, and in Madagascar in identically the same forms.

Our Nagas and other tribes climb trees by cutting notches for the toes, precisely as do the Australians, and use the bamboo pegged to a tree stem as a ladder, the same as the Dyaks.

The extraordinary hide cuirasses worn by the savages in the island of Nias, to keep out arrows and spears, are absolutely identical with those till lately used by our Nagas, and which are now rendered useless by fire-arms.

The large canoe war drums of Polynesia, the "Lali" of Fiji, and "Tavaka" of the New Hebrides are seen all through our Naga hills, and stranger still, have the "crocodile heads" carved at the extremities, though the animal is unknown locally.

The bamboo Jew's harp of the Phillipines and New Britain, sounds in all our Naga villages. The singular perineal bandage of New Guinea is here also quite common.

These are a few of the very singular instances of survivals, which unexpectedly meet us over a wide area, among races now considered more or less distinct, and which demonstrate a common origin in the far past, among races too, wherein the communal barracks for the unmarried is a persistent feature.

As before stated, many of these subsidiary social customs have varied, or died out entirely, here and there, due no doubt to differences in the physical surroundings, and in the barracks themselves we see often variations to suit local, or recent, requirements, which indeed is one good proof of extreme antiquity:

But certain features in relation to them have so persistently

remained, that they are probably fundamental necessities in the case.

Firstly, we see in all, except among the nomadic Australians, that there is a special and recognized building, or buildings, for the unmarried young men and lads to sleep in, and at times for the young women, also in many cases together.

Secondly, we notice that among the races having these barracks without exception, there is complete liberty between the sexes until marriage.

Thirdly, and most significant of all, these barracks are invariably tabu to the married women, whether the race, or tribe is exogamic or endogamic.

We may also note that, as a general rule, we see adult marriages where this social system is in vogue, and conjugal fidelity seems greater than among the more civilized races, by whom juvenile chastity is valued.

The crux of the entire question appears to be in the fact that from Bhutan to New Zealand from the Marquesas to the Niger, there is a distinct tabu raised against the married woman, as against a social interloper or innovation; and among tribes and races where otherwise there was complete sexual liberty, she is, in all cases, legislated against as an inferior, or slave.

If "marriage" had preceded the barrack system, it would, in many instances, have dominated it; but there are no traces of peaceful equality even between the parties to marriages in the past; everything tends to shew that the wife was a captured slave, and hence private property, as much so as a spear or pig.

As we see (still) among some savage races, the males killed or captured in a raid were invariably eaten, and the females reserved as slaves, or as we say "wives," and hence marriage arose in all these cases through capture, giving the successful warrior a right to one woman.

To many persons this feature of "barracks" for the unmarried, combined as it is with juvenile sexual liberty, and strict tabu against the married women, may appear so novel, that a few references to particulars and authorities may not be out of place. We can at the same time note the local variations, due to the geographical surroundings, or to the social advance of the race.

For instance among the semi-civilized Buddhist Shans of eastern Assam the "chang" is a semi-temple, and boys' school-house, where the lads at times reside for fixed periods, and which is tabu to women.

Among the Abor tribes, north-east of Assam, the "Mosup" is

seen in every village, and Mr. J. F. Needham describes them in the *Proceedings of the Royal Geographical Soc.*, May 1886, as at times 240 feet long by 30 wide, with 24 fire places. These are not only the guest and council houses, but among head-hunters are the guard-houses in which "the single men warriors reside," and where "certain warriors are told off daily, who keep a look out day and night."

"The side walls are crammed with the heads of every description of animal, and all down the centre of it, are to be seen the bows, arrows, fishing gear, hats, spears, &c., of the warriors, on bamboo trays. The "Mosup" is close to the entrance to the village and would hold about 500 men."

"The unmarried girls have apparently any amount of latitude given to them," and are very fond of singing and dancing. In the early dawn he was roused by yells throughout the village, and on enquiry was told it was an order from the "Mosup" going round for a general holiday next day, and that every man, woman and child was to remain in, and not go to work in the "jhum."

Among the Miri these communal buildings are called "De-ri," and there are (as among the Abors) several in each village. They are not only the guest and council houses but the recognized sleeping places for the unmarried young men and young women, boys and girls, between whom until marriage, as in all these cases, there are no restrictions.

As might naturally be expected, they are strictly tabu to the married women.

Among the Miris settled long in the plains, there is a very distinct advance in individualism, and in small communities the "De-ri" is declining into a boy's play house, though the freedom between the sexes, in the unmarried state, is not curtailed, and may be called notorious.

The great Naga communities whether savage head-hunters, or peacefully inclined, present us with various forms of these communal barracks. In some of the large eastern villages, as many as 10 or 12 for young men, and 4 or 5 for unmarried girls are found. As a rule those for the young men, are guard houses, placed so as to cover the entrances to the village. Each being manned by the lads and young warriors of the adjacent section of the village, or "morong."

Between the Dikhu and Disang rivers among the tribes descended from Sangloi, these barracks or guard houses are called "Pah," and as there are probably an average of 6 to each of the 60 villages; there would be about 360 Pah on an area of some 600 square miles.

In some tribes on this tract, there are no distinct houses or "Pah," for unmarried girls, who sleep at home, and in Zu, the head village

of the Banpara tribe, those for the young unmarried men are named as follows:—

1. Ra man	Pah.	7. Ko nu	Pah *
2. Pak Ké	"	8. Nok sa	"
3. Vong tong	" *	9. Nai tong	" *
4. Ra Nok	"	10. O hin	" *
5. Ten tok	"	11. Pa nu	
6. Lo tong	" *	12. Pa sa	
		13. Vang hum	Pah.

The first six belong to the smaller half of the village (which is divided by a deep khud, whence water is obtained from natural springs). The other seven are in the other portion of the village which includes the residence of the chief or "Vang hum." The "Pah" marked thus\* are large ones commanding entrances to the village and are more or less fortified. Towards the centre of the village there are several *Pum Pah* (3 or 4) for little boys. The others are manned by the young men who take it in turn to mount guard, day and night, 15 or 20 at a time, but who in this tribe take their meals at home.

Among a few of these tribes, the adults as well as juveniles are habitually nude, and in all of them, until 17 or 18 years of age, both sexes are absolutely so, except when visiting the plains.

Here as among the "*Wild races of S. E. India*," (by Colonel Lewin,) "great license is allowed before marriage to the youth of both sexes," p. 193; "every lad before marriage has his sweet-heart and he cohabits with her whenever opportunity serves, p. 203. The intercourse between both sexes is free and unrestrained until after marriage," p. 245.

In most cases these "Pah" are obviously associated with communal customs of the highest importance to the tribe, not only are they the schools in which the youths are graded and taught their duties, and use of arms, but they are the recognized rallying centres in times of public danger. Each contributes its share in all public labor, such as repairing fortifications, clearing roads bridging rivers and in building the houses, &c.

They lie in fact at the basis of the social life as relics of a more extensive communal system, which is slowly giving way to individualism, and here, as elsewhere, the "Pah" are tabu to the married woman.

West of the Dikhu river we find these communal barracks for young men, are called "*Arizu*," by the "Ao" or Haimong. Besides being the guest, council, and guard-houses the Arizu has the control of all war matters, and fortification, has charge of the big village drum,

secs to the fastening of the village gates at night, and other public matters.

There are it seems three orders or grades in these "Arizu:" 1st, the Scangpur; 2nd, the Tanabanger; and 3rd the Tepue (or Tepoe) and those who have passed through all and are still unmarried are called Azuiner.

As an illustration of the organization of the "barracks" in one of its many phases, a little detail may here be of some use.

The Scangpur are the lowest grade; they bring wood and water and are the servants of the other grades. *No parent can interfere* with the discipline, and as the term of each order is for three years, the discipline of the lower order is considerable and valuable.

When the other orders come in at night, tired from labor or from being on the war path, the Scangpur has plenty to do in shampooing and manipulating the legs, arms and backs of the weary or sick.

The second order or Tanabanger have less drudgery, but they have some; if there is wood needed for fencing or repairs of the "Arizu," the two lower grades have to do the irksome parts, and the term of service here also is for three years.

The third order, or Tepue, are the masters and instructors, and on entering it there is much rejoicing. In a war party they carry spear shield, and dao, the lower orders carrying the provisions, &c. The Ao have their kilong, or bongoh, and appoint one officer called sensong. Above all is one called "Unger." This last order has a great feast at the end of three years when it retires; the material is what the Arizu three orders have earned in the three years by going now and then to work on cultivation for rich men.

All of these three orders eat with their parents or elder brothers and usually work for them.

The number of "Arizu" houses in a village depends on circumstances, usually at least two, located near the chief entrances, occasionally there are 5 or 6 so as to afford sleeping places for the boys and young men.

This tribe has been annexed by us for some years, but in most of the villages the "Arizu" houses are kept up though there is now no warfare, and the boys are all expected to work for and be subject to their parents.

In some of these Ao villages there are, or used to be, "Arizu" for girls and unmarried young women, under control of elderly matrons.

Among the Mikirs (or Arleng) we again find communal barracks called "Tarengs." Boys enter them at from 8 to 10 years of age and there is generally but one to each village. Those who join the "Tareng" do so for a fixed period of 5 or 6 years or longer, after which it is

broken up, and those who wish to leave go out. When they form one they elect head men to it. The first is called Cleng sarpo and highest, the second is Cleng doon, and the third is called Sodar keta, the fourth Sodar loo.

No married man or one who is a widower ever joins a "Tareng," and there are none for girls. No girls, young women or married women may go near them, and they are used as council and guard-houses as well as being the regular sleeping barracks of the unmarried young men.

Anything happening is first reported to the Cleng sarpo, and thence to the villagers and head men. Any one visiting the village sleeps in the "Tareng," and any young man from the "Tareng" can go to any house he likes and sleep with an unmarried girl; her parents can make no objection. When once a "Tareng" is formed no one can leave it until it breaks up, or he is fined.

Among the Lushais a traveller informs us that "the custom is in all these villages, that the young men on arrival at a certain age, are expelled from their father's house at night, and sleep all together in the Zalbuk, or bachelors' house. The Zalbuk is one large room, inside a verandah.

Colonel T. H. Lewin frequently and very clearly refers to this custom in his "*Wild races of S. E. India*" and to the liberty allowed between the sexes before marriage, (see pages 119, 121, 182, 193, 201, 203, 245 and 254), making it particularly clear that among the "Hill tracts" therein referred to, the young unmarried men and lads are graded and governed by special communal laws, and that these dominate the rights of the parent, as will be gathered from the remark:—"his mother abused them much, but the father and mother could not hurt them as they were acting by the Goung's orders."

We constantly indeed find proofs that the right of the parents over their children is more or less subordinate to that of the communal barrack, that "the family" in fact as the social unit, is not yet emancipated, but holds a subordinate position in the body politic.

To a moral certainty, the above few instances do not represent a tenth part of the information which a systematic survey would reveal, in regard to this momentous subject, among the Indo-Mongolian races, but enough has probably been said to shew that these communal barracks are a social feature of importance, deserving more careful study.

Turning now to Bengal and Central India, with its mixed and aboriginal races, we find these barracks in some form or other among the Gonds, Konds, Sonthals, Kols and others. According to the Revd. S. Hyalop, the Konds and Gonds have "in their villages *bothies* for bachelors." Among the Gaiti Gonds and Koitars, "each village has a house, or *gotalghar* (empty bed house) for single unmarried men to sleep in, and also similar ones for unmarried girls and women."



The Juangs (in Keonjur) have the same, and after work and eating, the young men drum and dance, while the girls sing. The Revd. R. Petrick, who lived as a Missionary for some years at Ranchi, informs me that under the name of "Damkuria" these communal barracks for the unmarried (of both sexes) are seen in all Sonthali and Oraon villages, and that before marriage there is complete liberty between the sexes.

Mr. W. H. P. Driver, who has had large experience among these races, confirms the above. Speaking of the Koroas (*Journal A. S. B., Volume LX, Part I, No. II, 1891*) he says :—

"Every large village has its "Damkuria" or bachelors' quarter, for boys who are too old to live with their parents," girls stay with their parents until they are married. The dancing ground "acra," is usually an open space in front of the Damkuria, and young people enjoy considerable freedom until they are married.

Turning now to the Archipelago and Pacific region, we find in more or less modified forms this singular social institution common all over New Guinea, and the houses conspicuous as "Dubus, Dobo, Dupa, Marea," &c.

Many of our best travellers and missionaries have given us excellent descriptions of them, and the customs pertaining thereto, though in many cases failing to perceive their sociological significance.

Considering the great difference between the Papuan and Indo-Mongol races, and the distance separating these areas, the similarity between the "Mosup," "Pah," "Arizu," &c., and the Papuan, "Dubu," "Marea," &c., is most extraordinary.

Not only are they in each case abnormally large and long semi-sacred communal buildings, which serve as guest and council halls, decorated with skull trophies of war, or feasting, and specially set apart as the sleeping places for the young unmarried men; but we find the structure and arrangement of the houses almost identical, not only are they characterized by extreme length, but in all cases the floors are raised on piles 6 to 10 feet high, we even see such a detail of construction as the peculiar Naga "hum tong," Miri "tung gong," or projecting siesta platform which is common among all Indo-Mongol houses, turning up in the Papuan "Araiba," identical in office and structure.

Internally we see a long hall, with fire-places and sleeping bunks each side. Last and most significant of all we find that in all cases these houses are strictly tabu to women.

In saying that the extraordinary identity seen between these Indo-Mongol and Papuan buildings and their objects, cannot possibly be the result of accidental coincidence we tacitly admit the existence of a far-reaching social relation between these now distinct races.

The Revd. J. Chalmers, describing Ipaivaitani's "Dubu," says—

"He himself led me by the hand, women and children remaining behind, men and youths preceding and following until we came to the "Dubu" itself, where I was met by a number of old men who waved their hands and bade me welcome. Inside and on each side of the long beautiful aisle were seated young men, legs crossed, and arms folded not speaking a word, while I was led down the aisle by the chief, followed by the old men until we came near the end where we stayed a few minutes, and I was then told to turn, on doing which all the seated ones rose, followed me out and a general conversation went on."

This is almost precisely the etiquette pursued in our Naga hills, see *Journal A. S. B. Volume XLI, Part I, of 1872* pages 17 and 18."

Further on Chalmers says :—"The temple, \*for a native building, was really good. In front was a large platform, and immediately under the great high peak in front, was a large verandah, on which the men sat sheltered from the sun and rain. I looked down an aisle nearly 200 feet in length. Inside the whole place was divided into compartments, in each of which there were fires, where the owners spent much of their time in eating and sleeping."

Speaking of the Maiva villages in the Papuan Gulf Mr. Lawes says :—"The sacred house, a fine building 120 feet x 24, was assigned for lodging. Inside the building was furnished with series of shelves or platforms, the upright posts were mostly carved, one at the entrance having a full length figure of a crocodile on one side, and a human figure on the other. The Dupu or sacred house has its times of more than ordinary sanctity, at such periods it is profusely decorated, and no woman's or child's eye is permitted to see it. The sacred house of each village generally stands at the end of the single street, and the other houses are of poor construction."

In the *Journal R. G. S. for April 1884*, page 216, the Revd. W. G. Lawes refers to Mr. Chalmers' visit to Maclachie point. "One Dubu or sacred house is described where two large posts 80 feet high support the large peaked portico, which is 30 ft. wide, while the whole building is 160 feet in length, and tapers down in height from the front. A large number of skulls of men, crocodiles, cassowaries and pigs, ornamented it. The human skulls are those of victims who have been killed and eaten by them."

These skull trophies which are met with all over the Pacific are a peculiar and suggestive counterpart to the identically similar skull trophies seen among most of the Indo-Mongolian races. Among the head-hunting Nagas, as many as 350 skulls, of men, women, and children, may at times be seen carefully ranged, in a "Pah," like the flower pots in a hot-house, the posts and beams being hung with boar, mithau and deer skulls tier over tier.

Sigr. D'Albertis, in several places in his travels in New Guinea, describes the "Marea," as guest and council houses, tabu to women, and situated at the end of a street of houses. At page 194 he refers to a corpse which was "taken to the house of the unmarried young men."

In many works of travel we see illustrations of the Marea or Dubu in New Guinea, as being situated at the end of a street, where the houses of the married people are placed end on, in two rows facing each other. At page 140 D'Albertis illustrates a "Marea" (at Para's village) 300 ft. long  $\times$  36 to 45 wide, this being the public hall and sacred house, but in this instance the huts of the married people are built (also on piles,) as a row of miniature houses along each side of the main communal building, and joined thereto by little flying bridges, across which the women dare not pass, their exit being by little doors and ladders down on the outer side.

Viewed in plan this arrangement of the large communal hall in the centre, with the married quarters all divided off along each side, is absolutely identical with the ground plan of many Indo-Mongolian houses, where there is a long and wide common central apartment, at times reduced to a passage, and off which on each side, are the rooms of the married couples all partitioned off, with their own fire-places, and with ladders and doors in the outer walls.

Among the Arfak villages Sr. D'Albertis alludes to the houses built on piles, wherein the men and women live, in one, divided down the middle by a partition, the men one side the women on the other, and they eat apart.

Captain Strachan in his "*Expedition to New Guinea*," page 166, :—Some of the houses of the Turi Turi were from 100 to 150 ft. long, the women and the men lived in separate houses, not even the married people living together. The houses are raised from the ground and a broad step ladder leads to a platform at either end. There are also platforms at the sides with several small doors or openings at intervals along the building." Sr. D'Albertis, (pp. 319-20), referring to the Mou, Miori, and Erine villages, says that the houses are in 2 rows, while large houses called "Marea" on piles, and tabu to women, contain skull trophies, and have no doors, but platforms in front called "Araiba" 6 to 12 feet high. These are the young unmarried men's sleeping houses.

Dr. Holrong refers to these "Marea" or "Dubus," when he says: "The young men live together in one building which is distinguished by the figure of a man." (*Proc. R. G. S.* 1888, page 602).

Mr. J. C. Galton writing in "*Nature*," (page 205, 1880) of Macleay's travels, says that the "Buam ram ra," or sacred house is strictly tabu to women and children, while the "Barum" or great dram and all musical

instruments are also tabu to them, but are played by the "Malassi" or unmarried young men; and women eat by themselves.

Thus we see on the great island of Papua amongst races now distinct in physique and language from our Indo-Mongolians, Dravidians, and Kols, these singular communal barracks. Under the names of "Dubu, Marea, or Buam ram ra," these peculiar and conspicuous semi-sacred houses are built on piles, decorated with skull trophies, used as guest and council houses, with the projecting siesta platform, are the sleeping places of the young men, and strictly tabu to the women, the family live in subordinate huts.

In Dr. Guppy's "*Solomon Islands*" page 57, we find that:—"In the large villages, the houses are generally built (on piles) in double rows with a common thoroughfare between; the tambu house occupies usually a central position, and has a staging in front. Page 67:—"In the the tambu houses of St. Christoval and the adjoining Islands, we have a style of building on which all the mechanical skill of which the natives are possessed has been brought to bear. These sacred buildings have many and varied uses. Women are forbidden to enter their walls, and in some coast villages as at Sapuna in the Island of S. Duna, where the tambu house overlooks the beach, women are not permitted to cross the beach in front. The interior of these houses is free to any man to lie down and sleep in."

If we turn to the Bismark Archipelago, the Louisiades, and New Hebrides we find either recent or former traces in them of these social barracks and many of the customs which so commonly accompany them such as "jhuming," tatooing, pile building, head-hunting, &c., and here there are canoe houses.

Mr. W. Powell, referring to the little houses of the natives on New Britain, says:—"For each village two large houses are built; one for the men the other for the women, no man is allowed in the woman's house, nor is any woman allowed in the man's house, the latter is generally used for a council house. They are lined with bunks made of bamboo which extend along both sides, serving as beds or seats."

Near Port Webber he found, in a clearing, several houses, a large one in the centre, a council or reception house, with the large "garamoot" or wooden drum before it. This house "might have been, as in other parts of New Britain, a young man's sleeping house."

"When in want of women for their young men to marry (as they may not marry into their own tribe), they make a raid against the bush tribes of Byning and seize the young women, eating the bodies of the men killed or taken prisoners."

Captain C. Bridge in the *Proceedings R. G. S.*, September 1886, page 549, informs us that "at Ambrym (New Hebrides) and some

other islands the young, unmarried men in a village always sleep in a large house specially set apart for them." And in the Pelew Islands "in each village there are large club-houses to which the younger men resort, a few women from neighbouring villages also frequent them. It is not considered *comme il faut* for a woman to enter one in her own village. If she did she would become an outcaste; going into one a mile or two off, however, in no way affects her position."

As far off indeed as New Zealand we find the so-called "bachelors' barracks" have spread from Polynesia. In a note from Mr. S. Percy Smith, he says:—"The bachelors' barrack is a Polynesian institution, known in New Zealand as the "Wharee Matoro," which was the sleeping place of the young men, and often of the young women too; *Wharee* means "house" and *Matoro* is the advance made by women towards the other sex (often used *vice versa* also). These "wharee" were also the places where the village guests were entertained. Sexual intercourse between the young and unmarried was quite unconstrained in former times."

Turning north to Formosa we find that Mr. G. Taylor, in the *Proceedings, R. G. S.* for 1889, page 231, says that in the aboriginal villages there are one or more buildings called "Palong Kans," which are large houses built to accomodate the youths from the time they attain puberty until married. Their food is prepared by the parents and taken to the "Palong Kan," the lads are never allowed to reside in the paternal home. All public matters are discussed in the "Palong Kans" and it is of the nature of a caravanserai, as any visitor may enter, hang up his belongings and begin cooking at the public fire.

By day the building is watched by the youths in turn. On the receipt of any intelligence necessitating a meeting of the villagers, the watchers attach to their waists the iron bells which always hang at the door, and run through the village, regulating their speed by the importance of the matter to be discussed.

Dr. Warburg again at page 743 refers to the Formosan skull hunts, blood money, and "club houses for young men."

In Borneo again we find a large number of savage races, many of them notorious head-hunters, and who in physique and customs are almost identical with our Indo-Mongols of the hills round, and south of Assam. Not only among Dyaks and Nagas do we see, jhum cultivation, building on piles, houses 200 and 300 feet long, head-hunting, blackening the teeth, aversion to milk, and barracks for the unmarried youths; but singular details absolutely identical such as the bamboo pegged to a tree stem for a ladder, getting fire by see-sawing a long strip of dry cane under a dry branch held down by the foot, &c.

According to Sir Henry Yule:—"In Borneo as well as among the

tribes of the Assam frontier, we find in each village one or more public halls used for public ceremonies, but which also form dormitories of the unmarried young men of the community and serve thus as a sort of main guard to the village, and in these halls both in Borneo and Assam is often seen suspended the treasure of trophy skulls. Hence St. John often calls them head-houses and sometimes bachelors' houses." Unfortunately St. John's "*Life in the forests of the far East*" is not in our library, and I must be content with the above single quotation.

Wallace, however, in his Malay Archipelago, page 50, says, "My things were taken "up to the "head-house," a circular building attached to most Dyak villages, and serving as a lodging for strangers and the place for trade. The sleeping room of the unmarried youths, and the general council chamber."

It may not be out of place to notice here, that in some cases the type of Chief's house is the same as those seen in the hills round Assam, and in New Guinea.

In Mr. D. D. Daly's note on the explorations in British North Borneo, (*Proceedings R. A. S.* January 1883, p. 6) he says:—"At Pnnpun, the head man is Rendom, who lives in a large house, raised ten feet off the ground; there is a centre passage through the top part with many rooms containing families on either side." This is structurally identical with our Chiefs' houses in the Naga hills, and many other places, see "*Nature*" June 19, 1884 p. 169.

The difficulty of tracing these barracks among the savage tribes in Sumatra has been considerable. So far my only source of information has been the short notice in the "*Illustrated London News*" of September 12th, 1891, p. 335, of M. Julius Claine's trip among the Battak Karo, in May 1890. He says:—"The town of Sirbaya is divided into several "kampongs," separated by bamboo palisade and ruled by their respective chiefs. The houses are built on piles of squared timber. In front of the house is a raised platform with a staircase of bamboo. The interior is one large room with a trench along the middle of the floor serving as a passage from end to end. This abode is occupied by the family Patriarch, with his married sons and daughters and their children, each branch of the family having its allotted place.

They pass much of their time on the outer terrace or platform, and occasionally sleep there at night. A dozen married couples with their offspring, or nearly 100 persons, may inhabit one such dwelling. Unmarried young men live together in a large house sometimes of two stories, which is set apart for them.

So that here again in Sumatra we find unmistakably this singular social institution, and according to "*Nature*" August 13th, 1885, p. 346, these Battaks are "head-hunters."

Whether the segregation of unmarried youths is seen in the island of Nias, and among the Tagal and Igorotte of Luzon, and the forest nomads of central Sumatra I cannot say, but over the whole of Polynesia it seems to have co-existed with a stage of complete sexual liberty which now appears shocking to us.

For many years one of the greatest difficulties met with by the Missionaries over this region was the absence of terms in all the languages, denoting virtue, modesty and chastity. The attempts to explain these terms to old or young alike, were met by shrieks of laughter, as they were utterly incomprehensible.

In all cases this universal and naive immodesty seems to have co-existed with the communal barracks sacred to men only, whether among exogamic or endogamic communities, and even among those as in "Taipi" of the Marquesas, where marriage, as we understand it, had not been fully developed, or hardly begun.

In the "*Narrative of a four months' residence in the Typee Valley of Nukuhiva, one of the Marquesas, in 1847,*" Mr. Hermann Melville fully describes the "Ti" or bachelors' hall, "at least 200 feet in length, though not more than 20 in breadth; the whole front of this structure was completely open. Its interior presented the appearance of an immense lounging-place, the entire floor being strewn with successive layers of mats. Thus far we had been accompanied by a troop of the natives of both sexes, but as soon as we approached its vicinity, the females gradually separated themselves from the crowd, and standing aloof, permitted us to pass on. Inside, muskets, rude spears, and war clubs were ranged around."

This is an almost exact repetition of Mr. Needham's description of the Abors' "bachelors' hall", or "Mosup" (*Proceeding, R. G. S. May, 1886, p. 317.*) "80 yards long and 10 yards wide," and is entirely open along the whole of one side. In this house all the single men warriors reside, and it is also used as a council room, and the arms are also stored in it as in the "Ti," of the "Marquesas."

The most remarkable feature in regard to Typee is that while in that instance the sexual liberty was unusually complete, and the "bachelors' barracks" seen in its purest form, the institution of "marriage" was yet in its infancy and from the very nature of the conditions was developing on endogamic lines.

The "capture of wives" appears in that case to have been practically an impossibility, as a rule, and hence it may be one of the rare instances where monogamy or polyandry arose by endogamy. But the marriage tie, or "nuptial alliance" seems to have been of a very simple nature, and easily dissolved.

In the case of "Taipi," we see a tribe confined to a valley 9 or 10 miles long by 1 or 2 wide, living on bread-fruit, plantains, cocoanuts, yams, growing spontaneously; no cultivation, and possessing no cattle: only the pig; their houses scattered among the trees, not grouped into villages; and having perpetual feud with Happar and Nukuhiva, adjoining tribes, eating these enemies when slain. The absence of marriage except in a rudimentary (endogamic) form, the complete sexual liberty, utter ignorance of modesty, and remarkable development of the Ti, or barracks tabu to women, are as singular as the general happiness and plenty, absence of sickness and crime.

For many years past an obscure relation has been observed in many ways between the Indo-Pacific region and East Africa; it crops up in several matters, and hence we need not be surprised at finding that, in variously modified forms, our communal barracks for the unmarried are seen among the Massai and other races. Dr. Parkes noticed them on the Congo. In the *Proceedings, R. G. S.* for December, 1884, page 701, Mr. Joseph Thomson says:—"The most remarkable distinctions characterise the various epochs in the life-history of the Massai. The boys and girls up to a certain age live with their parents, and feed upon meat, grain, and curdled milk. At the age of 12 with the girls, and 12 to 14 with the boys, they are sent from the married men's Kral, to one in which there are only unmarried young men and women. There they live in a very indistinguishable manner till they are married."

"At this stage the men are warriors and their sole occupation is cattle-lifting and amusing themselves at home. The young women attend to the cattle and build the huts, and perform other necessary household duties. So pleasant does the Massai warrior find this life that he seldom marries till he has passed the prime of life and finds his strength decline. The great war spear and heavy buffalo-hide shield, the sword and the knobkerry are laid aside. For a time—a month—he dons the dress of an unmarried woman, and thereafter becomes a staid and respectable member of Massai society." The habits of this strange tribe are purely nomadic, they move about according to the pastures. Their houses are formed of bent boughs, plastered with dung."

Again Mr. D. K. Cross, in the *Proceedings, R. G. S.* February 1891, page 87, referring to the Awamwamba of Nyassaland, thus describes the village houses of the unmarried people:—"the unmarried men or 'wakenja' as they are called, live in long-shaped houses, often 50 feet or 60 in length built of bamboo. No man is allowed to marry till he is about 30, and able to buy a wife. The herds are kept in separate houses which are long like those of the unmarried men."



Traces of the "bachelors' barracks," young men's clubs, and fetich houses tabu to women, are, I believe, found all across Africa, both among Bechuanas and Caffres, and the Bakalai of the Gaboon.

Thus we appear to have in the case of the Massai, at least one instance in Africa, of organized sexual promiscuity as a social phase preceding marriage. Hitherto we have seen, this feature among more settled races, in this instance it is seen among semi-nomads, where from the nature of the surroundings, in past times, the development of "marriage" appears to have been retarded by the ample supplies of food due to a pastoral life.

In strong contrast to this, we find among the Australian races, who are truly nomadic, and where food is procured with difficulty, that the possession of a wife (*i. e.*, female slave) is of the utmost importance socially and early marriage the rule. A man's wealth is measured by the number of his "lubras." Yet strange to say these races who have no settled villages or permanent buildings, exhibit the two social features so conspicuous in those having bachelors' barrack, *i. e.*, complete sexual liberty among juveniles in the clan or horde, and isolation of the young men from the married families.

It has been urged by MacLennan in his "*Primitive Marriage*," pp. 85, 86 and 87, and by Peschel in his "*Races of Man*," pp. 223, 224 and 5, that the cause of exogamy has been due to the horror of consanguinity, and that it is among rude and savage races "that a horror of incest is developed most strongly." Apparently the fact has been unknown, or overlooked, that it is precisely among such races that we see the most complete, most unlimited, and socially recognized sexual liberty permitted within the tribe or clan *until* marriage, whether it is endogamic or exogamic; that the "communal barracks" are in fact in many cases directly due to this fact, and hence are universally tabu to the married woman whether a captive or not. It is precisely in consequence of the sexual license attached to these barracks, that they *are tabu*. So that this "horror of incest" is really a fiction. It is much to be regretted that the want of a little more practical knowledge of savages and semi-civilized races, has caused MacLennan, Peschel and others, to make such a serious mistake as to suppose that exogamy and wife capture, were due to a "horror of consanguinity," a "terror of such alliances," and that (MacLennan, *l. c.* p. 232), "It is precisely nations in the most primitive stage which have the greatest abhorrence of incestuous marriage," and hence practice wife stealing so as to avoid it. This view of the savages' morality is necessarily ludicrous to all who understand the "communal barracks," and the sexual orgies so common among races having this institution, and wherein they are

viewed as *harmless juvenile amusements*. A view which extends from the Himalaya to New Zealand, and from the Marquesas to the Gaboon and beyond.

But to return to our (exogamic) Australians, and the traces of the barrack system among these nomadic races. Mr. Brough Smyth at page 36 of his great work says:—"The unmarried young men have a place set apart for them in the camps, and they are not permitted to associate with the females, page 62. At the "mur run" initiation of a girl by old women, after being painted, young men (20 or so) approach and take an oath not to assault her, but she may entertain any of them of her own free will as a lover, till married.

As marriage is only possible by capture or exchange, a man with no female relations (to barter) is an object of suspicion, and has to "share the discomforts of the bachelors' quarters." (page 86). A man calls a woman of the same caste (or clan) "Warton," *i. e.*, *sister*, and cannot marry her, yet connections of a less virtuous character which take place between them, do not appear to be considered *incestuous*." "Intercourse between the males and females belonging to the same class, appear to be regarded without disfavor." "In arranging the "miams" (in a camp) care is taken to separate the unmarried young men from the married females and their families. It is not permitted to the young men to mix with females, but the young people of both sexes evade all precautions generally," (p. 124).

"When one tribe visits another, huts are built for them by the hosts, and one is set apart for the young unmarried men," (p. 135).

Again young men are taunted by the young women of their own tribe, if they marry outside by peaceful arrangement, (*i. e.*, they object to loss of their lovers), (vol. II, p. 82).

The above are a few references out of many (in one work) to the fact that, excepting the married woman alone, there was complete sexual liberty within the horde or clan, between those calling themselves brothers and sisters. This be it observed among races where their strict exogamy is, or has been, attributed to the dread and "horror" of risk of incestuous intercourse. There can be little doubt that as Mr. Horatio Hale and others believe, the Australians are a degenerate race, or that they have carried with them into adverse surroundings, these two remarkable social features of complete sexual liberty within the clan, and the segregation of the unmarried youths, after exogamy arose. They exhibit one of the rare cases where among savages the increased importance of marriage and the "wife"—as a food gatherer,—has dominated the relics of the barrack system. It is the opposite of what we have seen among the Massai, where the com-

munal barracks appear to have survived in greater purity than elsewhere, due possibly to the absence of inducement to develop the marriage system.

It is instructive to note that while in the main perhaps, the development of social arrangements may have been from a stage of communism, through "wife capture," to endogamy, these three stages are not necessarily so incompatible as to be impossible together at one and the same time. Among many of our Indo-Mongoloid races we see all the three forms existing together in the same community. Taking the Banpara tribe as an illustration, we see in the head village Zu, as before noted, complete sexual liberty until marriage, and 13 typical bachelors' barracks or Pah, which are also skull-houses, guard-houses, council and guest-halls, strictly tabu to married women.

This sexual liberty before marriage, is part and parcel of the whole social organization, and has been so apparently from time immemorial, producing no bad results, and is strenuously defended by old and young alike. If any grown girl becomes pregnant, which is a rare case until after marriage, there is very little trouble caused, as the young fellow to whom she is most partial is then allowed to marry her, with less delay and expense than usual. A feature in the case is noteworthy, i. e., that, as a rule, by the time a young man has reached the age of 24 or 25, and a girl 20, both settle down as quiet and sedate parties while still in the early prime of life. The stage of excitement is over, and it is exceedingly rare to find infidelity; divorces being less frequent than among civilized races who value juvenile chastity. But side by side with this unlimited sexual liberty before marriage, we see that among the chiefs of these same tribes, who are great sticklers for etiquette and customs, their marriages are strictly exogamous, they may not marry into their own tribes. The Chopnu ("bear") chief must not marry a "bear," or Chopnu girl, but he may marry a Chanu or "tiger," or Yanu, "iron." A Yanu chief may marry a Chopnu but not a Yanu. At the same time, when young, all those chiefs have the same liberty precisely as the other young men, have several sweethearts, and at least before marriage, one or more concubines, from their own tribe, the children of whom, if any, do not become chiefs. These concubines are called "Karsais." Their "Kuries" or true wives are arranged for with other chiefs who have marriageable daughters, often a tedious and costly matter, including political alliance. The ceremony, when it comes off is largely a mock capture, the bridegroom and large number of elaborately decorated warriors, in full war paint, with guns and spears, meet the bridal party on the tribal boundary, execute their war dances and bring the bride home to

a grand feast and general drinking bout. The "Karsais" or concubines, meanwhile, are kept on, and as before, are practically servants, the Kuri indeed looks on them as indispensable. So that the chiefs are exogamic, and the marriage is a relic of wife capture, the ceremony often a mock capture or fight. But the rank and file of these head-hunting savages are now so closely packed all over these hills, and have been so for, at least 1,500 or 2,000 years that the difficulty of procuring wives, when so often at feud all round, has necessitated endogamous marriages, at first no doubt between different villages of the same tribe semi-independent. As a rule now, the common folk are endogamous, and the marriage is arranged by parents or relatives, at times by payment, and at others service, or both. In all cases, however, as amongst all the races having barracks, and sexual liberty, these marriages are adult, and not juvenile, as among Hindus and Mohamedans, and the parties themselves have the greatest say in the matter, they are not little puppets.

Of the three forms of sexual relation the oldest is probably the communal barrack system, which is so generally seen as at the basis of many tribal customs and which underlies the whole social life, a stage of exogamy, following but not superseding it, survives as a relic among the chiefs, while endogamy is apparently more recent, and in turn does not violently displace either of the others. The elastic relations existing between the villages constituting a distinct tribe, give us indeed the clue to the mode of transition from exogamy to endogamy. Occasionally a large village with one or more offshoots, will declare its independence, or two tribes (or clans) at peace agree to found a new settlement, which in time becomes distinct.

Indeed this has been the normal mode of tribal development over the entire area. Occasionally a single tribe or clan will be comprised in one large village or "chang," and at feud with all others around it for 6 or 8 years, and this has no doubt led to endogamy, especially as so many of these "changs," are at times built on semi-detached peaks, and are practically almost distinct villages. But the transition from exogamy to endogamy among these tribes, has evidently been exceedingly slow, possibly not less than thousands of years, judging by their unwritten history, which goes back in some cases about 30 generations, and which unless secured at an early date, will undoubtedly be lost for ever. The remarkable feature in the case is the steady persistence of the "barracks" all through, as a social survival from a period which evidently preceded the origin of these races as we now see them.

The sociological significance of these singular communal institutions, briefly referred to in the foregoing, it is imperatively necessary

to study carefully if we hope to glimpse the earlier forms of social development, or settle whether man has been from the first "a pairing animal," and the family the unit, as some suppose, or whether the unit has been the small chiefless communal clan.

A general, if somewhat cursory survey in this research, is much more likely to elucidate the truth, than a very careful study of isolated instances, which vary so considerably, as to be at times probably misleading. Collectively these barracks seem to point to a communal origin, incompatible with the pre-existence of monogamy, the universality of the tabu against the married woman, among races wherein there is, and has been complete sexual liberty till marriage, seems to point out the married woman or captured slave, as a social interloper; she is not the superior or even the equal in the situation anywhere, but is universally legislated against as an inferior, the barrack dominates her and even her offspring. They are antagonistic.

One of the dangers of studying this subject exclusively from a few instances only, is seen in the fact that in many cases the tabu against the "wife," has gradually been extended to the other women and girls of the clan, a very natural development. But while there are apparently no cases wherein the married women can visit or sleep in these young men's barracks (in their own tribe) there are a large number wherein the unmarried girls can do so, and not a few in which these latter are *expected* to do so, or even in which special barracks (*Gabru morongs*) are built for them. Those who know anything of these primitive races, among whom we find these communal barracks and their utter disregard for juvenile chastity, must smile at the remark that "it is precisely among nations in the most primitive stage which have the greatest abhorrence of incestuous marriages," and that this drove them all into wife capture. As if to render this view still more ludicrous, Huth's "marriage of near kin," amounts to a demonstration that consanguineous marriages are not at all necessarily injurious, and may at times even be beneficial, as all breeders of stock well know and the race of Ptolemies demonstrated. That in the earlier stages of human development, ere social customs arose regulating the rights of property, there may have been a time when captured women were the public property of the horde, is not impossible. But as soon as rights in captured spoils were recognized, by races wherein there was sexual communism, and hence less internal competition for females, the right of the stronger warriors to keep their female captives as "wives," would be less disputed. The more valuable such females became as slaves, the more "wife capture" would be developed, as in Australia. MacLennan would appear to have been under misapprehension, when

in arguing against the "origin of marriage" by capture, he thought it unlikely, because savages had "women of their own whom they could marry." It is precisely because in a communal stage, all the females of the tribe, or horde, were public property, that no male could isolate, and appropriate one, as his own *exclusively*, that the right to a captive female slave (as a wife) became feasible. She was private property.

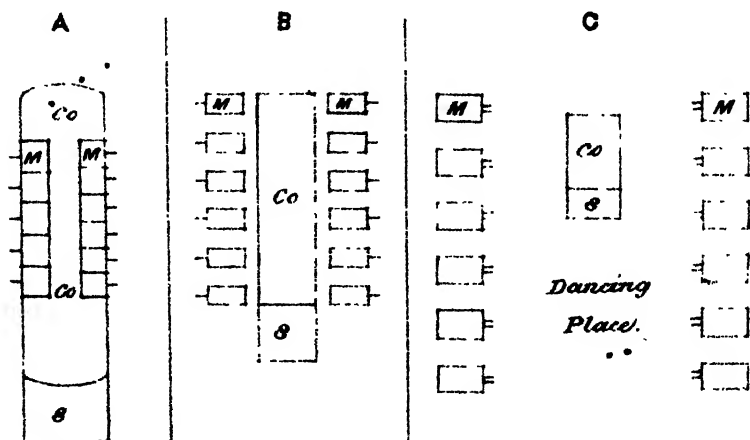
The distinct private right to captured weapons, utensils or slaves, resulting from "joint action," is notorious among savages. Hence it is singular to see MacLennan insisting that the public right to a "beautiful captive," would stand as an argument against "marriage by capture." When we examine the matter closely, *in situ*, we find that invariably, the property captured in a joint raid, is never scrambled for, but subject to laws or rules minutely regulating the private rights of those engaged. Whether in fishing, hunting, or in raids for much coveted heads, to secure the envied tattooing, there are strict rules as to the rights in the spoils. I have known a case where the youngest lad in a head-hunting party alone secured the head, and the honor of tattooing, out of a party of 63 young warriors. Without strict and recognized rules in all such matters, there would be chronic social anarchy. So that when closely examined MacLennan's argument will not hold water. Whether an exhaustive study of these singular "communal barracks" seen among so many distinct races under such various local phases, will eventually shew us that they are the relics of a former stage of communism, it is not easy to see, but there are certain persistent features which appear to point in that direction, among others the universal tabu against the married women. If "marriage" by capture of female slaves, arose while society was in the stage of communal hordes, or clans, it is very easy to see that the successful warriors would naturally object to their female captives (or wives as we now call them) associating with the unmarried young men in their communal quarters, and hence tabu them. It is what we might naturally expect under the circumstances, and also that these warriors would generally have the power as well as the inclination to enforce such a social law. If there were no other females available for the rest of the males, it might not have been so easy perhaps, but when we recollect that in all these cases there was complete sexual liberty within the horde itself, among its normal female members, the successful isolation of the captive wives was probably feasible, and hence arose both the "marriage" and "tabu" simultaneously. The almost universal power of these communal relics, over the children, a power which, as a rule, dominates that of the parent, is another indication that marriage and the family are of more recent development. Indeed the

indications that some forms of communal association preceded the isolation of the family turn up in several unexpected ways. At page 140 of his travels D'Albertis illustrates a "Marea" at Paras village 300 ft. long by about 36 wide, this being the great communal building, or sacred house, tabu to women, and in this instance the houses of the married folk, also built on piles, are two rows of little huts, one along each side of the great building, distinct from it, yet with little flying bridges to it, across which the men alone could pass, the women's access to them being by little doors and ladders on the outside, as in fig. B. This arrangement and isolation of the married people's quarters, on either side of a common hall or passage, seems to underlie the construction of houses very generally all over this part of the world, as in figure A. In the case of the "Mou Miori," (D'Albertis) l. c. pp. 319-20, these married quarters are no longer little appendages along each side of the Marea, but are really distinct houses, and set back, so as to form a wide street, in which the communal Marea is placed. And here again we see that this arrangement as a street, is very common, from Assam to the Pacific. We even see that the clear space between the rows of houses used for dancing on, has a distinct name, the "Akra" of the Oraons, the "Imrai" of new Hebrides, &c., fig. C. All these houses are built on piles, 3 or 4 to 8-10 ft. long, and have the siesta platform S, projecting in front beyond the eaves; the "Airaba" of New Guinea, the "Tung gong" of Miris, and "Humtong" of Nagas. In all the figures, A. B. C. Co are the communal and M the married quarters.

The building of houses on piles which is very common among races having communal barracks, has long been a stumbling block to anthropologists. Mr. Crawford in his "*History of the Archipelago*," p. 159, attributes it to the people inhabiting marshes, banks of rivers, and the sea coast. Others say as a means of security from attacks of enemies or wild animals. But as Sir Henry Yule pointed out in the *Journal of the Anthropological Institute*, February 1880, page 296, it cannot be due to these and is really a race character.

The most likely cause for the custom seems to be the presence of the pig, which, as a domestic, or semi-domestic animal, is kept by almost all pile building races, and which unless there were some means taken to effectually frustrate its depredations, would devour everything edible within reach, infants included, as some of the people themselves point out. They could not go out to their jhums, without leaving a guard behind them. This "pile building" is one of the *allied customs* before alluded to; and exhibits the usual variation due to influence of physical surroundings.

The fact that these barracks are found over such an immense area among such distinct races, and with such marked geographical variations, obviously due to the surroundings, indicates an extreme antiquity, preceding the differentiation of physique and even language, and being essentially of a communal nature they seem relics of a social stage preceding monogamy, and to demonstrate more or less clearly that marriage arose by capture. The extreme, and indeed *absolute* freedom between the sexes before marriage, culminating in many races, in sexual orgies, and the absence of the ideas of modesty and chastity, amply demonstrate that it could not have been the *dread of incest* which drove them into exogamy. There appears to be absolutely no evidence that a peaceful stage of monogamy preceded the communal barrack system, certainly no evidence of peaceful endogamy, or "marriage" within the horde or clan. Such evidence as we have is distinctly in favor of "marriage by capture," having arisen during a stage of communism, the relics of which we see surviving in these singular communal barracks. That they are doomed, and ere long will become extinct, is not at all doubtful to those who have watched them in some cases for 20 years. The trader and the missionary are rapidly changing the old order of things, and, even without their aid, there appears to be some evidence that among many of these races, the importance of the family is in the ascendant. It is most desirable therefore that these social relics should be studied systematically at an early date, the information gained would be of much value to anthropologists, and not entirely useless perhaps to those interested in such questions as infant marriage, and the age of consent.





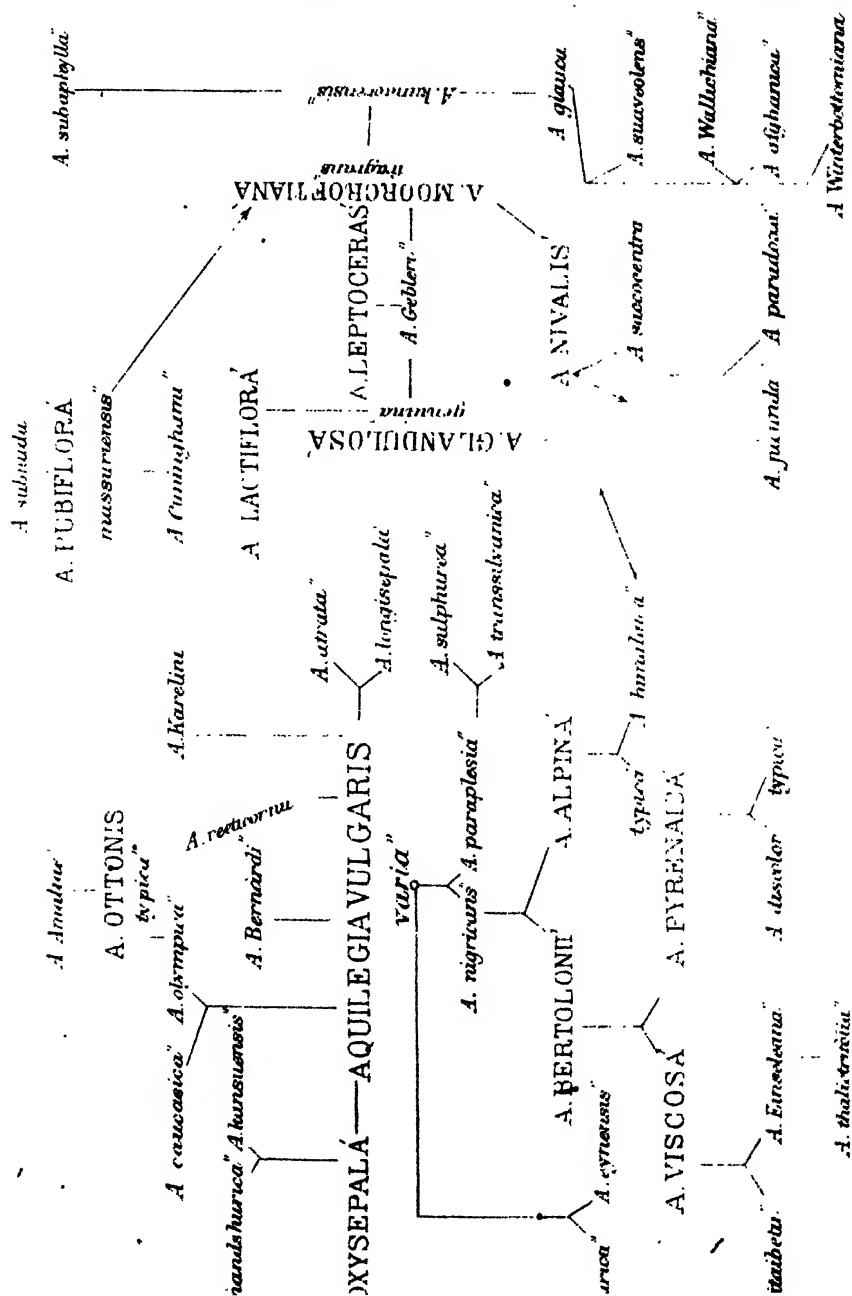
PRAEFATIO.

Ex quo tempore Hooker filius et T. Thomson de Ranunculaceis indicis in volumine primo Florae imperii indici conscripserunt, maximus numerus exemplarium stirpium exsiccatarum adlatus est a Stoliczka, Anderson, Kurz, Prain, Henderson, Scully, Giles, Aitchison, Duke, Ledebour, Schlich, Gamble, Ellis, Baden-Powell, Drummond, Davidson, Tanner, Sedgewick, C. B. Clarke, Watt, Gammie, Pantling, aliisque viris magnaque speciminum copia cumulata est in herbariis calcuttensi et kharanpurensi summa industria atque cura Duthiei et Doctoris King, clarissimorum virorum illorum de rebus botanicis indicis optime meritorum. Ac peregrinationes lubresque Hancei, Henryi, Prattii, Davidi, Delavayi, Maximowiczii, Przewalskii, Potanini, qui, fortes ad pericula desertorum terroribus vel hostium montiumque altissimorum frigoribus indomiti, Mongoliam et Tibetiam et Chinam propriam peragraverunt, atque species novae in imperio sinensi repertae et ab Maximowiczio, Franchetio, Hemsleyo, aliisque accuratissime descriptae ac definitae comparationem stirpium indicarum cum stirpibus regionum finitimarum reddiderunt faciliorem.

Quamobrem Ranunculaceas indicas denovo perscrutari et cum reliquis asiaticis et europaeis comparare instituimus, quamquam regnum nipalense vix exploratum et eius partes Himalayae quae a terra sikkimensi ad orientem vergunt adhuc fere ignotae nos impediunt ne quaestionem plane cumulateque perficiamus. Species autem Ranunculacearum valde variabiles sunt mixtumque in modum polymorphae, ut perdifficile sit formas varias in species subspecies varietatesque disponere harumque fines

Ita fit ut genera plurima in species permultas, descriptionibus definitas, naturae plane confusas, divulsa et quasi discerpta videamus. Facilius enim est apta dissolvere quam dissipata connectere.

Et quamquam in libellis floris excursoriis dictis consiciendis parvum interest utrum more Jordaniano subvarietates ad speciei dignitatem perducamus, an sequentes O. Kuntze sexcentas species aliorum auctorum etiam redigamus: maximi momenti esse censimus in plantarum distributione investiganda et ad doctrinam transmutationum aliasque quaestiones physiologicas recte intelligendas non se iungere ea quae gradualiter transcurrentia sunt in alterius naturae sunt iuncta. Itaque in his disputationibus species statuimus esse universitatem omnium stirpium quae quamvis extremas inter se differant habitu, magnitudine, indumento, partium figura, aliisque notis, ita formis mediis copulatae connectaeque sunt.





[AQUILEGIA CASCA]

A. ECALCARATA

A. BREVISTYLA — A. PARVIFLORA — A. VIRIDIFLORA  
 flabellata — A. SIBIRICA — A. Buergeria

pubiflora A. lactiflora A. Ottonis

Aleptoceras • A. glandulosa — A. VULGARIS — A. OXYSEPALA

Moorcroftiana A. Bertoloni

A. hybrida

A. FORMOSA typical — A. caerulea

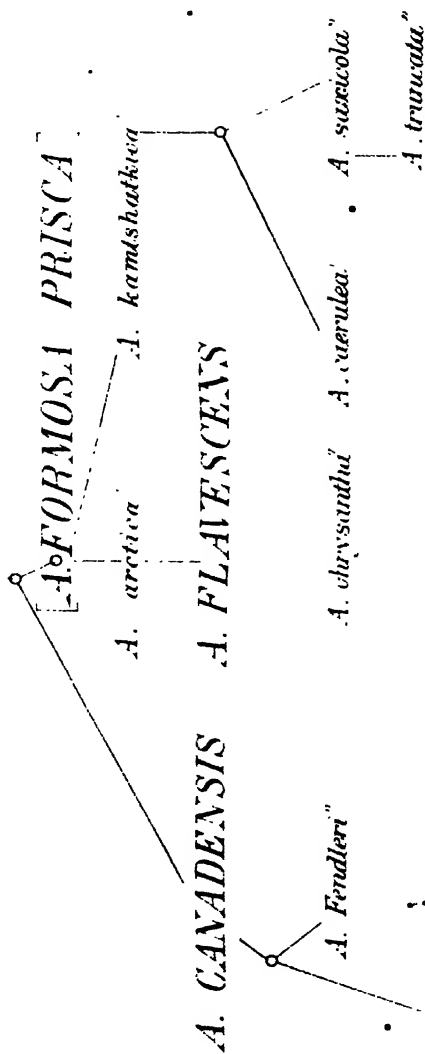
A. arctica

A. pyrenaica A. viscosa A. CANADENSIS A. FLAVESCENS

A. Skinneri



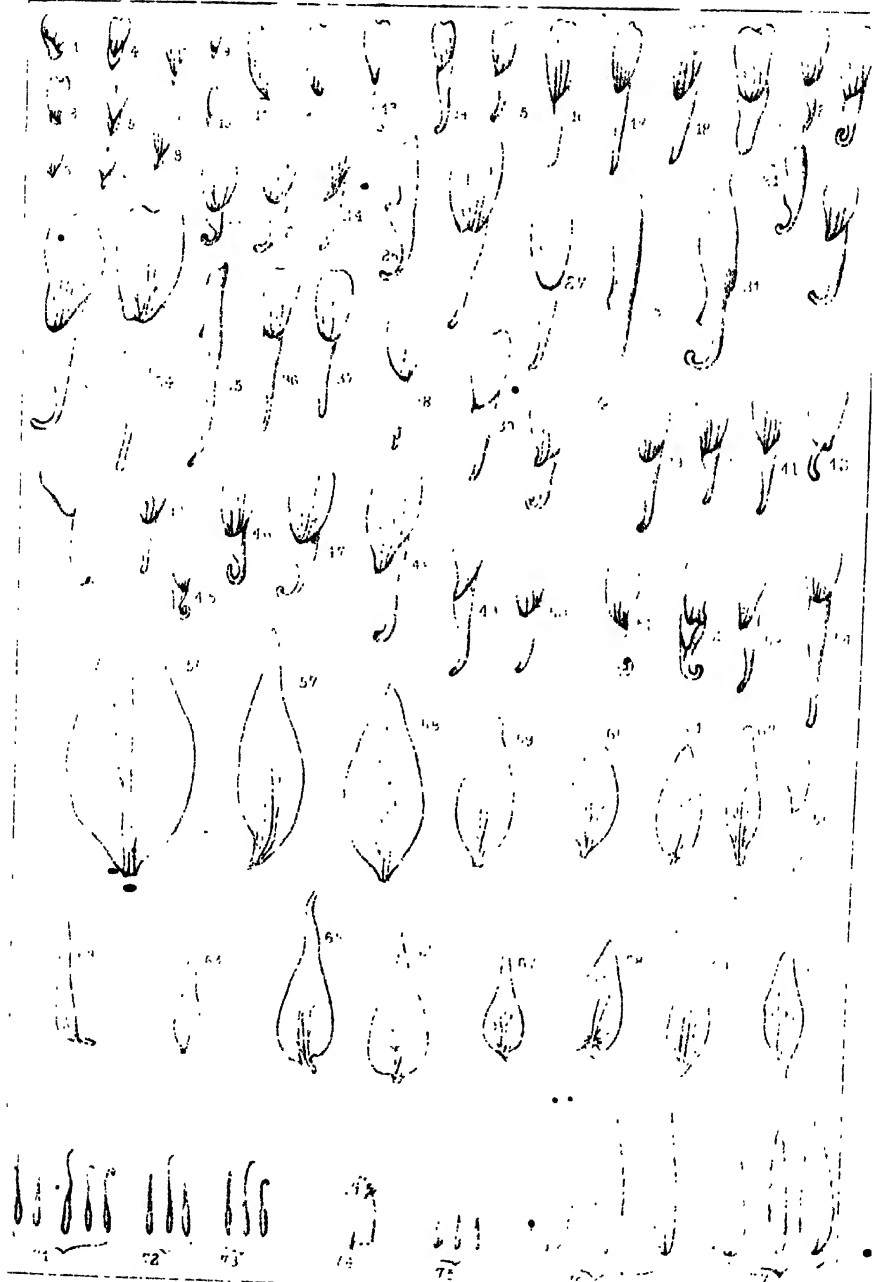
[*A. HYBRIDA PRISCA*]



*A. BREVIS TYLA*

*A. Skinneri*











indagatione rerum naturae substituendae? Neque Baillon, vir doctissimus, Aconito ad subgenus Delphinii redacto, dinumerat omnes species Aconiti sub nomine Delphinii neque nomen suum nominibus mutatis adiecit. Nam satis est scribere Aconitum Napellus *Lin.* aut, si mavis, Aconitum' Napellus *Lin.*, virgula posita post nomen subgeneris. Quid? Si quis omnino tollat genus aliquod, aut si nomina prisca in libris antiquis indaget atque odoretur, nomenne suum nomini mutato affigat? Imitandine sunt viri illi illustrissimi qui ipsorum nominibus scribendis nunquam fessi laboribus levioribus aeternitatem adipisci immortalitatemque sibi parere volunt et sub titulo legum conservandarum omnia miscunt atque perturbant? Immo honorem censimus iis esse tribuendum qui in notis quibus species nova a reliquis eiusdem generis speciebus distingui possit accurate ac diligenter investigandis operam laboremque consumpserunt, neque iis qui in enumeratione stirpium quae in terra quadam crescunt conscribenda aut qui nomine generis commutato speciebus veteribus nova nomina imponunt. Itaque sufficet scribere—Ranunculus Shaftoanus *Aitch. et Hemsl.* (sub Oxygraphide), vel, si placet, uti nos in his disputationibus interdum scribemus,—Ranunculus! Shaf-toanus *Aitch. et Hemsl.* vel plane Ranunculus Shaftoanus *Aitch. et Hemsl.* neque Ranunculus Shaftoanus *Boiss.* Et scribere quidem maluissimus—Ranunculus Shaftoanus (*Aitch. et Hemsl.*), nisi *Torrey et Gray* in Flora civitatum boreali-americanarum nomen auctoris nominis speciei inter arcus posuissent neque scripssissent exempli causa—*Caltha palustris* (*Lin.*) vel *Trollius laxus* (*Salisb.*).

Sed ad propositum revertamur. In disputatione prima de *Aquilegia* dicemus fusiis, quod magna in herbariis *Aquilegiarum* indicarum videtur esse confusio; in altera omnes species indicas ordinis *Ranunculacearum* in subspecies et varietates disponere easque accuratius definire conabimur, ac praecepta addemus concisa ad species in provinciis nonnullis indicis gignentes ratione ac via determinandas; in postrema denique de variatione atque polymorphismo *Ranunculacearum* quae in imperio iudico regionibusque finitimis nascentur proponere instituimus.

Materiam autem ad has disputationes conscribendas praebuerunt herbaria hortorum calcuttensis et saharanpurensis, thesauri illi ditissimi stirpium indicarum exsiccatarum, quarum usum debni benignitati liberalitatisque Doctorum King et Prain, ac comitati cl. Duthiei qui non solum *Ranunculaceas* in herbario saharanpurensi conditas mihi libentissimo et, propter studia mea frequenter negotiis publicis longo intervallo intermissa, per longum temporis spatium incommodo suo commodavit, sed cuius exemplaria exsiccata etiam ab ipso magna cura ac diligentia lecta optimeque conservata investigationum labores mearum aliquanto sublevaverunt.

Nominum autem compendia quibus in his commentariis utemur inter alia haec sunt :—

F. I. = Flora indica; F. B. I. = Flora of British India; H. E. I. C. = herbarium of the late East India Company; H. Calc. = herbarium calcuttense; H. Sah. = herbarium saharanpurens; A. = Dr. Anderson; Aitch. = Dr. Aitchison; B. = Dr. Brandis; B. P. = Baden-Powell; C. = General Collett; Cl. = C. B. Clarke; D. = Duthie; Dd. = Davidson; Dr. = Drummond; E. = Ellis; G. = Dr. Giles; J. = Rev. Jaeschke; K. = Dr. King; K. C. = viri qui missi sunt a doctore King stirpes legendi causa; Sez. = Dr. Stoliczka; Sy. = Dr. Scully; W. = Dr. Watt.

## DISPUTATIO PRIMA.

### DE AQUILEGIA.

Inter genera variabilia Ranunculacearum ac polymorpha vix aliud genus inveniri potest de quo tam variae sint sententiae virorum rerum herbariarum peritorum tamque discrepantes quam sunt de Aquilegia, quarum nonnulli dinumerant plus quadraginta species, quas alii ad quinque vel sex redigendas esse censent. Atque Hooker filius et T. Thomson in Flora indica et in Flora imperii indici omnes formas indicas ad Aquilegiam vulgarem revocant, et Aquilegiam pyrenaicam, Moereroftianam, fragrantem, pubifloram, glandulosam, aliasque cum Aquilegia vulgari formis mediis connexas esse et ad eam reducendas affirmant, quamquam plurimi qui quidem in artis herbariae cognitione versentur illas species omnes inter se maxime distinctas et certo ab Aquilegia vulgari seiungendas esse arbitrantur. Quamobrem ad omnes formas Aquilegiarum, europaeas, sibiricas, caucasicas, americanas, praecipue autem indicas et sinenses perscrutandas nos conferre constituimus, ut reperiamus, si id fieri possit, quae notae constantes et ad species discernendas aptae evadant quaeque sint mutabiles neque ad species propinquas separandas valcant. Sed ne revolvamur eodem in hac quaestione tractanda, antequam formas varias denuo in species aut subspecies varietatesve distribuimus, species ita accipimus uti sunt definitae in monographiis Bakeri et Zimmereri vel in Floris orientali Boissieri, rossica, altaica, dahurica, tangutica, mongolica, aliisque auctorum rossicorum, vel in germanicis, italicis, gallicis Kochii, Bertolonii, aliorumque scriptorum.

Si autem quaerimus quibus notis ii qui de Aquilegiis scripserint ad harum species internoscendas in monographiis et floris usi sint, animadvertimus auctores indumento, thallomatis ramificationi, foliolorumque figurae ac magnitudini, partium floralium formae et mensurae comparatae vel per se aestimatae, denique folliculorum longitudini et fabricae, seminumque structurae vim discriminis adiudicavisse.

Primum igitur de indumento pauca dicamus. Nam species *Aquilegiae* saepe ab auctoribus distinguere invenimus praesentia aut absentia pilorum glandulorum. Atque mirum quanta confusio exstiterit ex specie illa *Gouani*, quam auctor propter indumenti naturam *Aquilegia* viscosam nominavit, quod nomen doctissimum Boissierum aliosque induxit ut stirpem *Gouanianam* ab *Aquilegia* vulgari typica nullo modo diversam, tabulam autem pictam in *Illustrationibus* male descriptam esse censerent; *Kitaibel* vero stirpem eam, cui postea *Schott* *Aquilegia* *Kitaibelii* dixit nomen, eandem esse vult ac speciem *Gouanianam*, quam quidem *Zimmer* cum dubio ad *Aquilegia* *Einseleanam* refert. *Baker* vero in monographia sua *Aquilegiarum*\* *Aquilegia* viscosam speciem bonam neque cum varietate aliqua viscosa *Aquilegiae* vulgaris neque cum *Aq. Einseleana* confundendum esse putat. At vero exemplar vidimus humile uniflorum a *Requien* in monte *Ventoux* Provinciae lectum, cuius folia omnibus notis ita cum foliis in tabula *Gouaniana* pictis congruunt ut nobis persuasissimum sit hanc esse formam quam *Gouan*ius dicit humilem esse atque unifloram. Exemplar autem *Requien*i omnino cum exemplaribus quibusdam *A. Einseleanae* e valle *Sassina* *Savoyensi* allatis convenit, ut nemini dubium possit esse, quin *A. viscosa* *Gouan* eadem species sit atque *A. Einseleana* *Schulz* = *A. pyrenaica* *Koch* = *A. Bauhini* *Schott*, quae quidem transitus praebet ad *Aquilegia* *Kitaibelii* *Schott* = *A. viscosam* *Kitaibel* = *A. pyrenaicam* *Visiani* et *A. thalictrifoliam*, quam *Nyman* sub-speciem censet esse *A. Bauhini*. De sententia *Bakeri* et *Zimmeri* pars inferior caulibus foliaque *A. Einseleanae* glabra sunt, sed in exemplaribus nonnullis, neque tamen omnibus, in vallo *Sassina* lectis caulibus totus petioli petioluli foliaque basilaria manifesto glanduloso-hirta sunt, ita ut discrimen inter *A. viscosam* et *A. Einseleanam* reperiri possit nullum. Iam vero indumentum caulibus stirpium indicarum ita variabile est, ut nullius momenti ad species *Aquilegiae* sciungendas esse opinemur, utrum caulibus totus sit pilosus an pars eius inferior glabrescat. Mentionem autem facere licet hoc loco exemplarium himalaicorum *A. vulgaris* var. *Kurelini*, quorum parastomones apice hirti sunt, quod in nulla alia forma *Aquilegiarum* invenimus. Atque in *Himalaya* *Tibeticae* occidentalis forma quaedam *A. Moorcroftianae* occurrit, cuius caulibus infimus petioli petioluli folia dense vel densiusculo glanduloso-hirta sunt, quamquam illae partes *A. Moorcroftianae* plerumque sunt modico puberulae vel omnino glabrae; et in exemplaribus *A. nivalis* var. *paradoxae* *P. B.* vidimus caulem nunc basin versus glaberrimum nunc prope basin glanduloso-hirtum nunc totum cum petiolis dense hirsutum. Et foliola quidem *A. vulgaris* typicae

interdum sat dense pubescentia sunt, ut haec nota ad *Aquilegiam Ebnerei* et *A. vulgarem* discernendas non valeat. De quo concludendum esse censimus indumentum caulis foliorum parastemonum ad species *Aquilegiarum* internoscendas nullam vim discriminis habere. Meliores vero notas praebet indumentum carpellorum. Nam formae plurimae, quae cum *Aquilegia vulgari* et *A. canadensi* artioribus affinitatis vinculis coniunctae sunt, ovarium habent dense hirtum, cum carpella *Aquilegiae sibiricae* glabrae sint; vidimus tamen pistilla *Aquilegiae sibiricae* secundum suturam ventralem pube minuta vestita, et ovaria *Aquilegiae brevistylae* nunc pubescentia nunc glaberrima inveniantur. Atque carpella *Aquilegiae leptoceratis* a *Turezaninowo* glaberrima dicta sunt; sed Ledebour in *Flora rossica* exemplaria se vidisse ab ipso *Turezaninowo* missa, quorum carpella pubescenti-villosa fuerint, et stirpes in horto Schweitzingensi e seminibus sibiricis ortas ovaria pubescentia praebuisse scribit. Probabile autem, carpella iuniora hirta esse, sed cum matureseant, pubem fundere, ut interdum fieri accidit in aliis *Aquilegiis*, sicut in *A. pubiflora*.

Nunc veniamus ad staturam et ramificationem caulis foliorumque divisionem. Longitudo caulis floriferi *Aquilegiae glandulosae* variat inter 12 et 40 cm., *Aquilegiae kumaorensis* et *Aquilegiae pubiflorae* inter 15 et 70 cm., *Aquilegiae oxysepalae* inter 20 et 160 cm., *Aquilegiae vulgaris typicae* inter 35 et 120 cm. Cum autem caulis ramique enucti in floribus desinant, videamus quot flores in quarundam caule *Aquilegiarum* inveniantur. Habemus in *A. vulgari typica* 3-6-12, in *A. nigricanti* 1-5, in *A. glandulosa* 1-5, in *A. kumaorensi* 1-6, in *A. oxysepala*, *canadensi*, *Einsclana* 1-10; atque exemplaria reperiuntur *Aquilegiae pubiflorae* alia humilia et uniflora quae stirpes simplices *Aquilegiae viscosae* *Gouanii* in mentem revocant, alia procera 50-70 cm. altitudine octo vel decem flores edentia *Aquilegiaeque vulgaris* similina. Ramificatio igitur caulis valde varia.

Nec foliorum divisio videtur satis constare. Nam folia basilaria ternata *Aquilegiae leptoceratis* *Fisch. et Mey.* et *Aquilegiae dinaricae* *Beck* foliis biternatis plus minus mixta sunt, et folia plerumque biternata *Aquilegiae Bertolonii*, *A. viscosae*, *A. pyrenaicae*, *A. nivalis*, *A. nigricantis* haud raro cum ternatis nonnullis sunt sociata; quin etiam folia simpliciter ternata in *A. pubiflora* et *A. alpina*, speciebus foliis insigniter biternatis vel triternatis, haud semper absunt.

Atque foliola media in formis indicis saepius plus minusve profunde divisa, aut in *A. fragranti*, *A. kumaorensi*, *A. vulgari* var. *Karelini* folia plane triternata sunt; sed foliola terminalia *A. vulgaris typicae* et *A. canadensis* et *A. glandulosae* nunc ad basin usque trisecta, nunc ad medium tripartita, nunc vix ad quartam partem triloba. Species

autem Aquilegiarum nonnullas ab auctoribus magnitudine foliorum distinctas invenimus; et formæ inter se distantes certe foliorum mensura interdum discerni possunt, uti *A. pyrenaica* ab *A. grata*; sed foliola plerumque magnitudine mirum in modum variant. Longitudo enim foliorum mediorum foliorum basilarium *Aquilegie nivalis* 3-16 mm., *A. viscosæ* 5-25 mm., *A. glandulosæ* 10-40 mm., *A. alpinae* 12-40 mm., *A. pubifloræ* 10-45 mm., *A. vulgaris* var. *variæ* 25-50 mm., *A. Moercroftianæ* 9-50 mm., *A. canadensis* 12-50 mm., *A. oxysepala* 15-60 mm.

Latitudo quoque foliorum cum longitudine comparata nobis in discrimine specierum sæpe deest, quod videre licet si, mensura acta, latitudinem folioli terminalis cum longitudine comparemus. Quam ob rem in hac tabella mensuram latitudinis tanquam fracturam longitudinis expressimus:—

<i>A. oxysepala</i> ...	...	.	$\frac{4}{5} - \frac{10}{7}$ ,
<i>A. vulgaris</i> typ...	...		$\frac{3}{4} - \frac{5}{3}$ ,
<i>A. alpina</i> ...	...	.	$\frac{1}{1} - \frac{5}{4}$ ,
<i>A. Bertolonii</i> ...	...	.	$\frac{1}{1} - \frac{3}{2}$ ,
<i>A. Einsleana</i> ...	...	...	$\frac{3}{4} - \frac{1}{1}$ ,
<i>A. pyrenaica</i> ...	...	...	$\frac{1}{1} - \frac{3}{2}$ ,
<i>A. nivalis</i> ...	...	...	$\frac{1}{1} - \frac{3}{2}$ ,
<i>A. glandulosa</i> ...	...	...	$\frac{6}{7} - \frac{3}{2}$ ,
<i>A. Moercroftiana</i> ...	...	...	$\frac{1}{1} - \frac{3}{2}$ ,
<i>A. pubiflora</i> ...	...	...	$\frac{3}{1} - \frac{1}{3}$ (raro $\frac{3}{2}$ ).

*Aquilegia Einsleana* igitur ab *A. pyrenaica* et *A. Bertolonii* latitudine foliorum cum longitudine comparata aegre distinguitur. Mensurae autem inter se comparatae foliorum figuræ partis eorum basini spectantis afficiunt efficiuntque ut foliola margine sese obtegant vel attingant aut intervallo plus minusve manifesto inter se distent. Et foliola quidem terminalia foliorum basilarium basim versus conspicue cuneata sunt in *A. thalictrifolia* et *A. Einsleana* et *A. leptocerate*, lato cuneata in *A. Kitaibelii*, *A. Bertolonii*, *A. oxysepala*, aliisque; sed in *A. vulgari* typica nunc subangusto nunc lato cuneata nunc fere rotundata, in *A. alpina* basi aut obtusa subcuneata aut subtruncata, in *A. pyrenaica* lato cuneata v. subcordata v. rotundato-truncata, in *A. nivali* obtusa v. subcordata, raro cuneata, in *A. glandulosa* et *Moercroftiana* lato cuneata v. obscure cordata v. truncata, in *A. pubiflora* lato cuneata v. subtruncata. Foliola marginibus plus minusve sese obtegunt in *A. alpina*, *A. Bertolonii*, *A. pyrenaica*, *A. nivali*, *A. grata*; in *A. glandulosa* foliola marginibus plerumque imbricata sed etiam subdistantia, quod accidit etiam in *A. Moercroftiana*, *A. vulgari*, *A. oxysepala*, *A. pubiflora*; cum foliola *A. Einsleanae* et *thalictrifoliae* semper distantia

sint et in *A. Kitaibellii* sese vix attingant. Transitus vero animadvertuntur inter *A. Einseleanam* et *A. Bertolonii*; neque *A. thalictrifolia* cum *A. grata* et *A. pyrenaica* gradibus per *A. Einseleanam* et *A. Kitaibellii* non est connexa. Inter *Aquilegias* autem indicas *A. pubiflora* varietatibus foliorum insignis; folia enim nunc *Aquilegiae vulgaris*, nunc *Aquilegiae alpinae*, nunc fere *Aquilegiae viscosae*.

Sed haec quidem de foliis basilaribus: folia autem caulina inferiora *A. Moorcroftianae*, praesertim eius varietatis, quam Cambessède suaveolentem appellavit, mirifice polymorpha nunc *Aquilegiam vulgarem*, nunc *A. glandulosam*, nunc *A. alpinam*, nunc *A. Bertolonii* in mentem revocant; et in exemplaribus afghanicis et kashmiricis ex eodem loco allatis nunc crenas breves et rotundatas *A. Bertolonii* vel *pyrenaicae* nunc lineari-ablongas *A. alpinae* animadvertimus; neque folium caulinum infimum *A. Bertolonii* basilaribus semper dissimile, et stirpes *Aquilegiae alpinae* floribus magnis haud raro occurrunt quae foliorum caulinarum natura inferiorum ab *Aquilegia Bertolonii* acre discernuntur.

Mittimus vero de florum colore dicere: notissima enim mira varietas illa colorum quam vidimus in gregibus illis americanis *Aquilegiae caeruleae* et *formosae*; notissimae etiam varietates florum *Aquilegiae glandulosae* quae sepalis caeruleis petala nunc alba, nunc ochroleuca, nunc caerulea adiungit; notissimae denique in saltibus himalaicis stirpes illae *Aquilegiae kumaorensis* suaveolentis speciosis ornatae floribus ex calyce albido constantibus vel stramineo et corona, cui suffusus est color nunc ochroleucus, nunc albus, nunc violaceus.

Verum haec missa facimus; illud quae ramus num magnitudo florum discrimen sit inter species *Aquilegiarum*. Haec enim nota auctores saepe usi sunt ad *Aquilegiam vulgarem* et *A. nigricantem*, *A. Bertolonii pyrenaicam*que et *A. alpinam*, *A. Kitaibellii* et *A. pyrenaicam* et *A. Einseleanam*, *A. vulgarem* et *A. Ebneri*, *A. longisepalam* et *A. nigricantem*, *A. Moorcroftianam* et *A. fragrantem* internoscendas. Longitudinem vero sepalorum, quae nota ad magnitudinem floris attinet, in exemplaribus herbariorum indicorum, millimetris mensam, haec reperi-mus—in:—

<i>A. vulgari</i>	...	...	18-32,
<i>A. atrata</i>	...	...	18-32,
<i>A. nigricanti</i>	...	...	27-34,
<i>A. alpina</i>	...	...	30-45 (rarissime minus 30),
<i>A. Einseleana</i>	...	...	14-27,
<i>A. Bertolonii</i>	...	...	24-30,
<i>A. glandulosa</i>	...	...	16-45,
<i>A. nivali</i>	...	...	14-28,



<i>A. kunaorensi</i> var. <i>a</i> Camb.	...	14-24,
<i>A. kunaorensi</i> suaveolenti	...	26-50,
<i>A. oxysepala</i>	...	17-30,
<i>A. pubiflora</i>	...	12-28,
<i>A. fragranti</i>	...	22-30,
<i>A. pyrenaica</i> typica	...	17-27,
<i>A. canadensi</i>	...	12-22,
<i>A. caerulea</i>	...	22-40.

Distributio igitur *Aquilegiarum* in micranthas, mesanthas, macranthas vix hortulanis quidem usui esse potest; neque mensura sepalorum utenda videtur in discrimine *A. Ebneri* et *A. vulgaris*, *A. vulgaris* genuinae et *A. nigricantis*. Et quamquam Zimmer in tabella analytica scribit sepala *A. Kitaibelii* esse 17 mm., *Aquilegiae* autem *Einseleanae* et *pyrenaicae* 25-27 mm. longa, vidimus tamen exemplaria *Aquilegiae* *Einseleanae* in albis savoyensibus lecta quorum sepala 14-18 mm. tantum longa erant, et specimina reperimus *Aquilegiae* *pyrenaicae* e saltibus montis pyrenaei allata sepalis vix plus 17 mm. longis. Non est igitur vis discriminis in longitudine sepalorum. Melius autem insigne ad species discernendas mensurae sepalorum inter se comparatae praebere videntur; nam sepala exemplarium fere omnium *Aquilegiae* *pubiflorae* et *Aquilegiae* *oxysepalae* lanceolata et manifesto, interdum longissime, acuminata sunt; vidimus autem specimina *A. pubiflorae* sepalis aut ovato-lanceolatis longe acuminatis apice acutis aut obtusis, aut ovato-lanceolatis leviter acuminatis apice subacutis aut raro ovato-oblongis neque acuminatis apice obtusis, aut rarissime lato ovatis apice obtusis. In hac tabella latitudo sepalorum tanquam fractura longitudinis expressa est—

<i>A. pyrenaica</i> genuina	...	$\frac{1}{3}-\frac{2}{3}$ ,
<i>A. Einseleana</i>	...	$\frac{2}{3}-\frac{5}{6}$ ,
<i>A. vulgaris</i> typica	...	$\frac{2}{3}-\frac{3}{4}$ ,
<i>A. glandulosa</i>	...	$\frac{1}{3}-\frac{2}{3}$ ,
<i>A. moorcroftiana</i> typica	...	$\frac{1}{3}-\frac{2}{3}$ ,
<i>A. kunaorensis</i> suaveolens	...	$\frac{1}{3}-\frac{2}{3}$ ,
<i>A. oxysepala</i>	...	$\frac{1}{3}-\frac{2}{3}$ ,
<i>A. pubiflora</i>	...	$\frac{1}{3}-\frac{1}{2}$ , raro $\frac{1}{2}$ .

Reperiuntur autem sepala *Aquilegiae* *moorcroftianae* typicae nunc late ovata v. ovato-oblonga apice obtusissima aut subacuta, nunc ovato-lanceolata breviter acuminata apice obtusiuscula; sepala *Aquilegiae* *kunaorensis* var. *suaveolentis* nunc ovato-oblonga neque acuminata sed apice acutiuscula aut breviter acuminata apiceque fere obtusa, nunc ovato-lanceolata acutissima conspicueque acuminata; sepala *Aquilegiae* *alpinae* nunc late ovata acuta nunc elliptico-oblonga subobtusa. Sunt

igitur, quoad sepala, formae mediae inter *A. pubifloram* et *A. vulgarem typicam*, noque e sepala *A. oxysepala* latiora sepalis *Aquilegiae vulgaris* var. *indica* figura dissimilia.

Alia nota quam auctores ~~et~~ species sciungendas aptam existimant a longitudine sepalorum et petalorum comparata sumpta est, uti sepala • *A. Einseleanae* dicuntur petalorum limbum superare 14 mm., *A. pyrenaicae* 9 mm., *A. nigricantis* 21 mm.; eminere vero videmus sepala ultra petalorum marginem anteriorem 3–14 mm. in *A. Einseleana*, 4–9 mm. in *A. pyrenaica*, 10–21 mm. in *A. nigricanti*; in *Aquilegia* porro *pubiflora* 6–14 mm., in *A. Moorcroftiana* typica 3.5–12 mm., in *A. oxysepala* 4–11 mm., in *A. kunaorensi* suaveolenti 15–22 mm., in *A. nivali* 7–14 mm., in *A. glandulosa* typica 6–22 mm., in *A. viridiflora* interdum 0–4 mm.

Nec mensurae comparatae limbi petalorum longiorumque staminum nobis ad species sciungendus suppetunt. Neque columnam stamineam *A. atratae* nunquam extra petalorum campanulam 3 mm. tantum proiecctam vidimus, quod etiam accidit in *A. vulgari* typica; in *A. Einseleana* autem et in *A. alpina* stamina petalis sunt 2–6 mm., in *A. pyrenaica* 2–4 mm., in *A. glandulosa* 2–11 mm. breviora, cum in aliis stamina nunc sint petalis paullulo breviora nunc paullulo longiora. In *Aquilegia* vero *caerulea* var. *typica* stamina nectariorum limbo nunc 10 mm. breviora nunc 6 mm. longiora, nunc numerosissima nunc eodem fere numero atque in *A. canadensi*, nunc patentissima nunc subparallela, nunc fere eadem longitudine nunc inter se valde inaequalia.

Proximum est ut de forma laminae petalorum investigemus utrum satis constet ad discrimen specierum an variabilis evadat. Margo autem exterior petalorum manifesto rotundatus reperitur in *A. transsylvanica*, *glandulosa*, *incunda*, *Einseleana*, *thalictrifolia*, *Bertolonii*, *pubiflora*; rotundato-truncatus est in *A. vulgari*, *atrata*, *alpina*, *glauca*, *nivali*, *fragranti*, *Moorcroftiana*, *formosa*, *canadensi*, *Skinneri*. Vidimus tamen exemplaria *A. pyrenaicae* typicae et *A. Einseleanae* et *A. pubiflorae* quorum petala apice rotundato-truncata erant neque plane rotundata; *Aquilegia* autem *glandulosa* genuina *Fischeri* petala habet apice obtusa; et petala *Aquilegiae* *nivalis* nunc fere rotundata, nunc truncata ac sinuata, nunc profunde emarginata sunt. Figura igitur limbi petalorum, quamquam satis utilis ad subspecies internoscendas, nos in specierum discrimine fallere videtur.

Maximi vero momenti auctores plurimi calcaris formam magnitudinemque comparatam esse putaverunt.

Primum igitur de mensura calcaris cum laminae longitudine comparata videamus. Neque tamen de formis illis monstrosis *Aquilegiae vulgaris* ecalcaratis agemus, neque de varietate illa *Aquilegiae* *formosae* cui nomen *truncatam* dicunt disseremus cuius calcar longitudine vix

quinta decima vel vigesima pars est petalorum limbi, quae varietas vero cum forma illa calcaribus lamina quadruplo longioribus praedita et a Fischero sub nomine *Aquilegiae formosae* definita gradibus connexa est; cum *A. formosa* Fischeri sensim in stirpem illam, quae a Planchon arctica dicitur et in tabula picta\* lineis descripta est, transeat. Sed formis *Aquilegiae* vulgari affinibus nos contineamus. Mensuram\* autem calcaris ad longitudinem laminae redactam ita reperimus—

<i>A. vulgaris typica</i>	...	...	...	$\frac{1}{2}-\frac{2}{3}$ ,
<i>A. pyrenaica typica</i>	...	...	...	$\frac{2}{3}-\frac{3}{4}$ ,
<i>A. Einseleana</i>	...	...	...	$\frac{3}{4}-\frac{1}{2}$ ,
<i>A. Moorcroftiana typica</i>	...	...	...	$\frac{1}{2}-\frac{1}{3}$ ,
<i>A. kunaorensis suaveolens</i>	...	...	...	$\frac{1}{3}-\frac{1}{2}$ ,
<i>A. glandulosa (incl. incunda)</i>	...	...	...	$\frac{1}{2}-\frac{1}{3}$ ,
<i>A. fragrans</i>	...	...	...	$\frac{2}{3}-\frac{1}{2}$ ,
<i>A. pubiflora</i>	...	...	...	$\frac{5}{12}-\frac{1}{2}$ ,

Haec nota igitur nequaquam constat.

Sequitur ut de forma calcaris quaeramus. Calcar vero utrum rectissimum sit an modice incurvum nihil interest ad species inter-noscendas. Nam calcar nunc rectum nunc manifesto incurvum neque tamen hamatum reperitur in *A. Einseleana*, *Kitaibelii*, *thalictrifolia*, *Ottonis*, *leptocerato*, *Moorcroftiana*, *glauca*, *kunaorensi* *suaveolenti*, *pyrenaica*. Tabula picta vero *Aquilegiae* viridiflorae in Iconibus Delessertii ab auctoribus iterum iterumque reprehensa et male descripta existimata est quippe quae calcaria exhibeat apice incurva; vidimus tamen exemplaria mongolica a Potanino lecta calcaribus vertice manifesto curvatis minimeque rectis. Haec observatio nos incitat ad quaestionem investigandam num figura calcaris tanti momenti ad species distinguendas sit quanti eam auctores, perpaucis exceptis, esse crediderint. Calcaria *Aquilegiae* *Moorcroftianae* in alabastro saepe uncinatim incurva; cum stirps floreat, nunc stricta, nunc manifesto incurva ac calcaribus *Aquilegiae* nigricantis vix rectiora. "Meliora vero exempla variationis calcarum ex *Aquilegia* *pubiflora*, *fragranti*, *nivali* ducere possumus. Nam *Aquilegiae* *pubiflorae* calcaria reperimus saepissime uncinatim vel circinnatim incurva; in silvis tamen provinciae Simla forma occurrit sepalis quidem lanceolatis acuminatis folisque *Aquilegiae* *pubiflorae* genuinae sed calcare nunc manifesto uncinato nunc leniter incurvo minimeque hamato; et in varietate, quae Cunningham ex Himalaya pentapotamica attulit, calcar paulum incurvum sepalis nunc lanceolatis acuminatis nunc late ovatis obtusis adiunctum est. Vidimus etiam in herbario Kurzii exempla e Bavaria missa

\* *Flore des Serres*, tab. 795.

*Aquilegiae vulgaris* genuinae calcaribus rectis nequaquam hamatis; et calcaria *Aquilegiae alpinae*, vix unquam recta, in Appennino septentrionali fere more *Aquilegiae vulgaris* incurva inveniuntur, stirpes vero foliis *Aquilegiae alpinae* typicae instructae sunt neque cum *Aquilegia Bertolonii* confundendae. Sed ad species himalaicas revertamur. Sunt in terra gilgitensi et in Kashmiria stirpes caule elato insigniter folioso foliis valde divisis atque haud raro triternatis floribusque mediocribus affinitate artissima inter se iunctae; sed calcaria nunc perbrevia et circinnatim incurva *Aquilegiae glandulosae*, nunc lamina paullo breviora et manifesto incurva, uti haud raro sunt in *Aquilegia Einseleana*, nunc subrecta et lamina sublongiora *Aquilegiae Moorcroftianae* typicae. Neque forma illa, quae in montibus altissimis ad nivem deliquescentem nascitur et cui, auctore Bakero, *Aquilegia* nivalem nomen dedit Falconer, variatione calcaris minus insignis; stirpes sunt humiles, foliis biternatis, foliolis margine sese obtegentibus reniformibus vel late rotundato-deltoides, floribus saepius mediocribus, sepalis caeruleis vel violaceis, carpellis quinque, atque omnibus notis, calcaribus exceptis, ita inter se congruunt ut ne in varietates quidem divelli possint. Flores vero plurimi calcar habent crassiuscule conicum et vix incurvum formarum quarundam *Aquilegiae alpinae*; reliquorum autem calcaria nunc graciliora atque omnino *Aquilegiae pyrenaicae*, nunc breviora et circinnatim involuta uti in *Aquilegia glandulosa*; haec est forma cuius Hooker filius et Thomson in Flora imperii indicis nomine *Aquilegiae* iucundae mentionem faciunt, neque revera ab *Aquilegia* iucunda Fischeri distinguenda est nisi petalorum lamina truncata vel emarginata nec rotundata staminibusque saepius limbum subaequantibus. Quibus rebus expositis satis docuisse videmur calcarium figuram ad species indicas discernendas parvi momenti esse.

Jam vero parastemonas propter eorum varietatem praetermittamus. Sed de carpellis pauca dicenda esse putamus. Pistilla autem staminibus longioribus 1–5 mm. breviora vel 4 mm. longiora in *A. pubiflora*, 2 mm. breviora vel 3 mm. longiora in *A. kunaorensi* suaveolenti, 4 mm. longiora vel 1 mm. breviora in *A. nivali*, 1 mm. longiora breviorave in *A. oxysepala*, 2 mm. longiora vel 3 mm. breviora in *A. Moorcroftiana*, 1–5 mm. breviora vel fere 1 mm. longiora in *A. alpina*. Parvi igitur interest utrum stylus ultra stamina emineat an a staminibus superetur.

Styli autem primum saepissime recti, sed pollen postquam ventorum insectorumque ope dispersum est, parte stigmatosa saepissime paululum dilatata, apex styli haud raro plus minusve manifesto recurvatur. Occurrunt styli apice recti ac plus minusve recurvi nec raro fere revoluti in *Aquilegia nivali*, vulgari, fragranti, et stylus *Aquilegiae pubiflorae* et *Moorcroftianae* nunc rectus nunc apice circinnatim curvatus invenitur.

Sed quoniam de carpellis, qualia sunt ante coniunctionem pollinis cum ovulis factam, insignia ad species distinguendas trahere non possumus, videamus num liceat notas ad discrimen utiles de carpellis maturis ducere. Et certe formae quaedam ab aliis quibusdam longitudine folliculorum discerni possunt, uti *Aquilegia Skinneri*, cuius carpella matura inter *Aquilegia*s longissima et fere 3.5 cm. longa distinctionem huius speciei et *Aquilegiae canadensis* reddunt facillimam. Sed primum demus enumerationem longitudinum folliculorum, sequentes monographiam *Bakeri* et pollicis mensuram in millimetra commutantes:—

<i>A. Einsleiana</i>	...	...	8-13 mm.
<i>A. viscosa</i>	...	...	... 13 mm.
<i>A. thalictrifolia</i>	...	...	vix 13 mm.
<i>A. pyrenaica</i>	...	...	... 13 mm.
<i>A. Bertolonii</i>	...	...	... 13 mm.
<i>A. Amaliae</i>	...	...	fere 13 mm.
<i>A. pubiflora</i>	...	...	12-16 mm.
<i>A. viridiflora</i>	...	...	12-19 mm.
<i>A. brevistyla</i>	...	...	... 13 mm.
<i>A. flavescens</i>	...	...	12-19 mm.
<i>A. Moorcroftiana</i>	...	...	15-19 mm.
<i>A. glauca</i>	...	...	... 19 mm.
<i>A. canadensis</i>	...	...	fere 19 mm.
<i>A. fragrans</i>	...	...	18-25 mm.
<i>A. parviflora</i>	...	...	ad 25 mm.
<i>A. leptoceras</i>	...	...	fere 25 mm.
<i>A. vulgaris</i>	...	...	fere 25 mm.
<i>A. sibirica</i>	...	...	fere 25 mm.
<i>A. formosa</i>	...	...	vix 25 mm.
<i>A. chrysantha</i>	...	...	fere 25 mm.
<i>A. glandulosa</i>	...	...	fere 25 mm.
<i>A. caerulea</i>	...	...	plus 24 mm.
<i>A. alpina</i>	...	...	25-30 mm.
<i>A. Skinneri</i>	...	...	... 35 mm.

Verum fieri potest ut, maiore stirpium fructiferarum copia perscrutata quam fero in herbariis inveniat, magnitudo carpellorum magis variabilis reperiatur quam appareat ex illa tabella. Nam folliculi exemplarium quorundam sinensium *Aquilegiae oxysepalae* 16-18 mm. sed in mandshuricis sunt 26 mm. longi; et carpella matura *A. pubiflorae* et *A. Moorcroftianae*, illa 13-21 mm., haec 15-22 mm. longa animadvertimus.

Atque folliculi *Aquilegiae pubiflorae* saepissime sunt a medio valde recurvati uti in *A. olympica*; sed exemplaria etiam indica suppetunt,

quorum folliculi recti et paralleli sunt, ut in *A. oxysepala* et *A. caucasica*.

Quid igitur est? Nonne videmus omnia signa, quae ii, qui rerum herbariarum europaearum periti sunt, ad discrimen specierum generis *Aquilegiae* adhibuerint, in stirpibus himalaicis et sinensibus fluxa esse atque omnino cadere? Nonne videmus *Aquilegiam* fragrantem, uti gradatim in *Aquilegiam* Moorcroftianam et *Aquilegiam* kunaorensem suaveolentem transit, ita cum *Aquilegia* pubiflora artissimis affinitatum visculis coniunctam esse? Nonne videmus formam illam raram et speciosam in ingis provinciae Garhwal ortam, quae ab *Aquilegia alpina* morphologice certe non seiungenda est, nihil aliud esse nisi varietatem *Aquilegiae* kunaorensis? Nonne videmus *Aquilegiam* nivalem quae ipsa, et recte quidem, a Bakero varietas *Aquilegiae* glaucae, id est Moorcroftianae existimatur, non solum *Aquilegiam* pyrenaicam omnibus rebus imitari, sed etiam *Aquilegiae* iucundae quam proxime appropinquare? Nonne verisimile est stirpes illas quae in valle Nila una cum *Aquilegia* pubiflorae stirpibus crescunt, sed propter figuram calcarium indumentumque caulis atque foliorum ad varietatem Karolini *Aquilegiae* vulgaris referendae sunt, nihil aliud esse nisi formas *Aquilegiae* pubiflorae, quae, quasi atavismo, ut ita dicam, ad parentem *Aquilegiam* vulgarem spectent? Si vero folia, calcaria, fructus, reliquae denique partes stirpium himalaicarum atque sinensium ita variabilia evadant, ut eandem varietatem floribus nunc *Aquilegiae* pyrenaicae, nunc *Aquilegiae* iucundae, nunc *Aquilegiae* alpinae ornatae inveniamus, nonne notae, quibus *A. Einsiedlana*, Bertolonii, nigricans, discolor, Ebneri, atrata, aliaeque internoscuntur, nimis viles ad species discernendas videantur? Cognitio igitur varietatum *Aquilegiarum* indicarum ac sinensium nos in eandem sententiam adducit, ad quam abhiuc multos annos\* Hooker filius et Thomson scrutatione specierum europaearum aliarumque perducti fuerunt: *Aquilegiam* vulgarem, alpinam, glandulosam, viscosam, pyrenaicam, Moorcroftianam, pubifloram, aliasque complures speciem unam efficere, insigniter quidem variabilem et propter formas plures in propinquas sensim sensinquo transeuntes aegre in subspecies ac varietates distribuendam. Sed quoniam multas species ad unam redigendas esse demonstravimus, formas cunctas quas ab *Aquilegia* vulgari non seiungendas esse putamus enumerare oportet. Sunt autem haec—

*A. alpina* Lin.

*A. Amaliae* Heldr.

*A. atrata* Koch.

*A. kunaorensis* Camb.

*A. lactiflora* Kar. et Kir.

*A. leptoceras* Fisch. et Mey.

\* *Flora Indica*, p. 44, 45, (1855).

*A. aurea Janka.*  
*A. Bauhini Schott.*  
*A. Bernardi Gren.*  
*A. Bertolonii Schott.*  
*A. caucasica Rupr.*  
*A. dinarica Beck.*  
*A. discolor Lev. et Ler.*  
*A. Ebneri Zimtr.*  
*A. Einseleana Schulz.*  
*A. fragrans Benth.*  
*A. Fussii Zimtr.*  
*A. Gebleri Besser.*  
*A. glandulosa Fischer.*  
*A. glauca Linell.*  
*A. grata Maly.*  
*A. iucunda Fischer.*  
*A. Kitaibelii Schott.*

*A. longisepala Zimtr.*  
*A. Moorcroftiana Wall.*  
*A. nevadensis Boiss.*  
*A. nigricans Baumgt.*  
*A. nivalis Falc.*  
*A. olympica Boiss.*  
*A. Ottonis Orph.*  
*A. oxysepala Trautv.*  
*A. paraplesia Schur.*  
*A. pubiflora Wall.*  
*A. pyrenaica DC.*  
*A. Reuteri Boiss.*  
*A. Sternbergii Richb.*  
*A. subalpina Bor.*  
*A. sulphurea Zimtr.*  
*A. transsilvanica Schur.*  
*A. viscosa Gouan.*

Hæc formæ ita in subspecies varietatesque disponendæ videntur—

- |                                    |   |
|------------------------------------|---|
| I. <i>A. oxysepala</i> Trautv.     | <i>β. discolor</i> Levier et Ler.       |
| <i>α. mandshurica</i> P. B."       | VIII. <i>A. nivalis</i> Falconer.       |
| <i>β. kansuensis</i> P. B."        | <i>α. paradoxa</i> P. B."               |
| II. <i>A. vulgaris</i> typica Lin. | <i>β. saccocentra</i> P. B."            |
| <i>α. caucasica</i> Ledebour."     | IX. <i>A. glandulosa</i> Fisch.         |
| <i>β. olympica</i> Boiss.,         | <i>α. iucunda</i> Fisch.                |
| <i>γ. Bernardi</i> Gren.,          | <i>β. genuina.</i>                      |
| <i>δ. longisepala</i> Zimtr.       | <i>γ. sulphurea</i> Zimtr.              |
| <i>ε. atrata</i> Koch.             | <i>δ. transsilvanica</i> Schur.         |
| <i>ζ. Karelina</i> Baker."         | <i>ε. Gebleri</i> Besser.               |
| <i>η. varia</i> Maly."             | X. <i>A. Moorcroftiana</i> Wall.        |
| <i>θ. recticornu</i> P. B."        | <i>α. fragrans</i> Benth.               |
| <i>ι. Ebneri</i> Zimtr.            | <i>β. Winterbottomiana</i> P. B."       |
| <i>κ. dinarica</i> Beck.           | <i>γ. suaveolens</i> Camb.              |
| <i>λ. eynensis</i> P. B."          | <i>δ. glauca</i> Lindl.                 |
| <i>μ. paraplesia</i> Schur.        | <i>ε. kunoensis</i> Camb.               |
| <i>ν. nigricans</i> Baumgt.        | <i>ζ. Wallichiana</i> Herb. Calo        |
| III. <i>A. alpina</i> Lin.         | <i>η. afghanica</i> P. B."              |
| <i>α. typica.</i>                  | <i>θ. subaphylla</i> P. B."             |
| <i>β. himalaica</i> P. B."         | XI. <i>A. leptoceras</i> Fisch. et Mey. |
| IV. <i>A. Bertolonii</i> Schott.   | XII. <i>A. lactiflora</i> Kar. Kir.     |
| V. <i>A. viscosa</i> Gouan.        | XIII. <i>A. pubiflora</i> Wall.         |
| <i>α. Einseleana</i> Schulz.       | <i>α. Cunninghami</i> P. B."            |
| <i>β. thaliotrifolia</i> Schott.   | <i>β. Massuriensis</i> Boyle."          |

- |      |                              |      |                                       |
|------|------------------------------|------|---------------------------------------|
|      | <i>γ. Kitaibelii</i> Schott. |      | <i>γ. subnuda</i> P. B." <sup>1</sup> |
| VI.  | <i>A. grata</i> Maly.        | XIV. | <i>A. Ottonis</i> Orph.               |
| VII. | <i>A. pyrenaica</i> D. C.    |      | <i>α. typica.</i>                     |
|      | <i>α. genuina.</i>           |      | <i>β. Amalino</i> Heldr.              |

Affinitates autem in tabula tertia exhibitae sunt.

## SUBSPECIES, VARIETATES, SUBVARIETATESQUE AQUILEGIAE VULGARIS Linn.

### I. *Aquilegia oxysepala* Trautv. (1847)

(*Aquilegia vulgaris* var. *oxysepala* Regel Flor. Ussur. *A. oxypetala* Franchet, Pl. Dav., Pl. Delav.),

foliis basilaribus biternatis, foliolis incisocrenatis terminali rhombico v. cuneato-obovato, foliis caulinis sparsis, inflorescentia (1-) 2-10-flora, alabastris subcylindricis, sepalis erectopatulis lanceolatis acuminatis 17-30 mm. longis vinosobrunneis, petalis rotundato-lanceatis lamina albida calcaribus laminae subaequilongis uncinatum incurvis, staminibus petalorum apicem haud attingentibus, carpellis hirtis, folliculis cylindricis sine stylo 16-26 mm. longis.

Area geographica—Siberia orientalis, Mandshuria, China propria borealis et occidentalis.

#### var. *α. mandshurica* P. B.,

foliolis terminalibus foliorum basilarium 4-5 cm. longis, sepalis 27-30 mm. longis 10-12 mm. latis, parastemonibus acutissimis vix v. haud undulatis, folliculis sine stylo 25-28 mm. longis. *Mandshuria, China borealis, Siberia orientalis.*

#### var. *β. kansuensis* P. B.,

sepalis 15-25 mm. longis 5-7.5 mm. latis, parastemonibus oblongo-lanceolatis acutis conspicue crispule undulatis folliculis sine stylo 12-19 mm. longis. *Kansu, Hupeh, Setchuan, Yunnan.*

*var. aa.* inflorescentia 3-10 flora foliolis intermediis fol. bas 4-6 cm. longis. Vidi exemplaria ex *Hupeh (Henry)* et *Setchuan (Pratt)* allata.

*subvar. ββ.* inflorescentia 1-3 flora foliolis intermediis 16-25 mm. longis. *Hupeh (Henry !).*

### Descriptio subspeciei.

Rhizoma descendens, irregulariter cylindricum, collo reliquiis foliorum plus minusve in fibrillas solutis vestitum, atrobrunneum, caulem solitarium edens, 3-15 mm. crassitudine.

Caulis erectus simplex v. superne ramosus teres leviter sulcatus fistulosus, florifer (20-) 40-70 cm. altitudine basi 2-6 mm. crassitudine, plus minus puberulus.



Folia basilaria longissime petiolata sed caule florifero multo breviora 12–30 cm. longa; petiolum basi in vaginam lato lanceolatam margine membranaceam 5–35 mm. longam convergentem plurinerviam dilatatus leviter canaliculatus 2–20 cm. longus puberulus v. subglaber 0.8–2 mm. crassitudine; lamina biternata; petioli primarii graciles glabri v. puberuli, medio 15–70 mm. longo laterales  $\frac{1}{2}$ – $\frac{2}{3}$  medii longitudine; foliola membranacea viridia infra pallidiora tenuiter nervosa, terminale longe petiolulatum v. subsessile circumscriptione rhombum v. cuneato-obovatum, interdum subrotundum 15–60 mm. longum latitudine  $\frac{1}{2}$ – $\frac{1}{3}$  longitudinis basi lato cuneatum rarius subrotundatum fere ad medium rarius ad duo partes trilobum, lobo medio obovato saepe lato cuneato apice crenis grossis tribus inciso, lobis lateralibus breviter oblongis inaequaliter inciso-crenatis, petiolulo 1 cm. longo v. subnullo; foliola lateralia breviter v. saepius brevissime petiolulata v. plane sessilia trapezoidea asymmetrico lateque cuneata v. obscure semicordata ad medium v. infra medium inaequaliter biloba, lobis paucicrenatis v. intermedio plus minus profunde bilobulato.

Folia caulina intermedia sparsa sursum gradatim magnitudine decrescentia breviusque petiolata basilaribus subconformia; superiora subsessilia saepe profunde tripartita partitionibus lanceolatis, summa parva tripartita v. bracteiformia lanceolata integra.

Inflorescentia raro uniflora saepissimo 2–10 flora. laxissima. Pedunculi graciles longitudine variu teretes apicem versus pilis patentissimis dense pubescentes. Flores modicores v. maiusculi suberecti. Alabastri subeylindrici.

Sepala erecto-patentia membranacea lanceolata acuminata nervis ramosis tribus percursa basi longe cuneata v. abrupte constricta apice acuta 17–30 mm. longa latitudine  $\frac{1}{2}$ – $\frac{2}{3}$  longitudinis, dorso parco puberula v. glabra, vinoso-brunnea, petala 5–11 millimetris superantia. Petalorum lamina oblonga apice rotundato-truncata 12–15 mm. longa, albiola; calcar a basi conoidea sensim in apicem angusto subcylindricum attenuatum uncinatum incurvum (raro subrectum?) apice nectarifero subcapitatum, in flore aperto distantia inter punctum insertionis et partem infimam calcaris quam lamina 1 mm. longiore v. paullo breviora. Stamina modice numerosa apicem petalorum haud attingentia; filamenta longiora 7–10 mm. longa, lanceolato-linearia; antherae oblongae, 1–2 mm. longae, flavae v. fusco-viridescentes. Parastomones scariosi ovato-lanceolati apicem versus acutati marginibus plani v. crispule undulati 6–9 mm. longi, pistillis circiter 2 mm. breviores. Pistilla 5, erecta, 9–11 mm. longa; ovaria subeylindrica, in stylum graciliter subulatum subaequilongum sensim attenuata, cum parte inferiore styli denso patentissimeque hirta. Folliculi (4–) 5 chartacei paralleli cylindrici, stylo subulato 5–6 mm. longo rostrati, venis transversis crebris plus minus anastomosantibus conspicue reticulati, hirti, sine stylo 13–26 mm. longi crassitudine  $\frac{1}{2}$ – $\frac{2}{3}$  longitudinis. Semina numerosa oblongo-obovoides sectione transversa subtriangularia dorso curvata ventre carinata, circiter 2.5 mm. longa, nigra, nitida rarius subopaca, creberrime minuteque punctulata.

*Aquilegia hybrida* Sims, nisi revera forma hybrida ex *A. canadensi* et *A. vulgari* sit, quod dubium est quoad stirpes e seminibus sibiricis in horto dorpatensi natas, *A. oxysepala* foliis, colore florum, forma alabastri, sepalorum directione valde affinis videtur, et vix dubitandum quin varietas sit huius subspeciei calcaribus subrectis praedita.

II. *Aquilegia vulgaris* Lin.subspecies *typica*

(*Aquilegia vulgaris* subsp. I, II. f, et T. in F. B. I.; *Aquilegia vulgaris* *Zimmer* No. 1, *Baker* No. 18; *Aquilegia Ebnori* *Zimmer*; *A. nigricans* *Baumgt.*, *A. Sternbergii* *Rehb.*, *A. Haenkeana* *Koch*; *A. atrata* *Koch*; *A. caucasica* *Rupr.*; *A. olympica* *Boiss.*; *A. paraplesia* *Schur*; *A. longisepala* *Zimmer*; *A. dinarica* *Beck*; *A. subalpina* *Boreau*; *A. Bernardi* *Gren.*; *A. glaucophylla* *Stend.*),

foliis basilaribus biternatis, rarissimo ternatis, foliolis terminalibus cuneato-obovatis v. reniformibus rarius rhombeis, foliis caulinis sparsis magnitudine varia, inflorescentia (1-) 2-15 flora, sepalis stollatim patentibus ovatis v. ovato-lanceolatis 18-38 mm. longis, calcaribus lamina rotundato-truncata rarius obtusa paullo longioribus rarius subduplo brevioribus, staminibus petala 1-3 rarius 3-8 mm. superantibus, carpellis hirtis, folliculis e basi ovoidea apicem versus attenuatis sine stylis 18-24 mm. longis. Area geographica—Sibiria, Altai, Thian-Shan, Ferghana, Himalaya occidentalis, Caucasus, Armenia, Europa fere tota, Mons Atlas.

## Varietates.

var. *a. caucasica* *Ledebour*,

(*A. caucasica* *Rupr.*), caule 50-90 cm altitudine, ramoso folioso glanduloso-pubescenti, foliis basilaribus biternatis, foliolo medio longiusculo petiolato basi cuneato ad medium trilobo, lateralibus sessilibus v. breviter petiolulatis profunde bilobis, lobis rotundato-crenatis, foliis caulinis inferioribus basilaribus subconformibus sed brevius petiolatis, superioribus trifoliolatis foliolis bi v. trifidis v. integris, summis linearibus, floribus fere magnitudine var. typicae, sepalis cyaneis ovato-oblongis in apicem acutum acuminatis, petalorum lamina albida apice truncata, calcaribus e basi lato conoidea subulatis, hamatis staminibus stylisque limbum attingentibus, folliculis parallelis, e basi ovoidea attenuatis, sine stylo circiter 2 cm. longis, seminibus nitidis microscopice punctulatis.—Caucasus.

var. *β. olympica* *Boiss.*,

uti var. *a*, sed folliculi usque a medio divergentim recurvi et semina opaca granulata.—Armenia, Persia bor.

var. *γ. Bernardi* *Grenier*,

caule 50-70 cm. altitudine superne ramoso 3-7 floro, foliis basilaribus magnis varietatis typicae (variae), sepalis lato ovatis, petalorum lamina apice rotundato-truncata, calcaribus lamina subduplo brevioribus gracilibus hamatis, staminibus lamina multo brevioribus.—Corsica.

**var. *δ. longisepala* Zimmeter,**

(*A. longisepala*, Zimmeter No. 4), caule folioso 40–70 cm. altitudine superno glanduloso-pubescenti, foliis biternatis glabris viridibus, foliolis magnis (ad 50 mm. longis) cuneatis divergentibus ad quartam tertiamve partem trilobis, floribus saturate caeruleis, sepalis lanceolatis fere 38 mm. longis, petalorum lamina apice truncato-rotundata fere 1 cm. longa calcaribus lamina duplo longioribus uncinatim incurvis, staminibus laminam fere 5 millimetris superantibus.—Hungaria, Croatia.

**var. *ε. atrata* Koch,**

(*A. atrata* Koch, *A. nigricans* Rehb. et Zimmeter nec Baumgt.), caule superno ramoso folioso 35–80 cm. altitudine, foliis biternatis foliolis fol. bas. subsessilibus v. saepius manifesto petiolulatis glabris v. saepius infra puberulis v. subdense pubescentibus intermedio ad quartam partem v. ultra medium 3-lobo, lobo intermedio breviter oblongo v. cuneato-obovato, floribus purpureo-violaceis raris caeruleis, sepalis 18–32 mm. longis, petalorum lamina apice truncata raro rotundata 11–14 mm. longa, calcaribus quam lamina 2–5 mm. longioribus, staminibus in columnam subcylindricam petala (3–) 5–10 millimetris superantem associatis, stylo apice recto v. recurvo antheras saepe haud attingente, folliculis var. typicis.—Alpes, Jura, Silva bavarica, Transilvania; Thian Shan in montibus Alexandrinis?

**var. *ζ. Karelini* Baker (A. Sternbergii? Kar. Kir),**

caule 60–80 cm. altitudine folioso plurifloro, uti petioli petiolulique, usque a basi dense glanduloso-hirto, foliis basilaribus aut biternatis foliolisque ad medium v. magis profunde tripartitis aut plane triternatis, foliolis tenuiter membranaceis puberulis, crenatis obtusis, foliis caulinis inferioribus basilaribus subconformibus floralibus superioribus trifoliatis v. trisectis segmentis lanceolato-oblongis et lanceolatis, floribus puberulis, sepalis 20–24 mm. longis (in sibiricis longioribus) ovato-lanceolatis versus apicem obtusum acuminatis, calcare uncinatim incurvo laminae 11–13 mm. longae apice truncatae subaequilongo, antheris limbum vix attingentibus, parastemonibus late linearibus apice obtusiusculo apiculato minute hirtulis, pistillis 5–7 stamina haud superantibus denso glanduloso-hirtis, stylo ovarii breviori (descriptio ad exemplaria indica refert). Floret Iunio, Iulio.

Area geographica—Altai australis, Ala-tau, Thian-shan, Ferghana, Yarkand (P), Himalaya occidentalis. Specimina vidi in valle Nila provinciae Garhwal alt. 8–9000' a Duthieo lecta.

*var. γ. varia Maly*" (*Aquilegia vulgaris typica et Aquilegia subalpina Boreau, Zimmerer* No. 1),

caule 35–120 cm. altitudine basim versus glabro v. vix puberulo manifesto folioso, foliis caulinis inferioribus basilaribus subconformibus, foliolis fol. bas. infra subglabris v. densiusculo pubescentibus, foliolo medio saepe petiolulato ad tertiam partem v. fere ad medium trilobo rarius tripartito 25–50 mm. longo lobo medio cuneato-obovato v. transverse oblongo lateralibus saepius oblique obovatis, floribus caeruleis interdum albis, sepalis 22–32 mm. longis apice acutiusculo late acuminatis, petalorum lamina rotundato-truncata v. retusa, staminibus petala subaequantibus v. 1–3 millimetris superantibus, calcaribus  $\frac{1}{3}$ – $\frac{2}{3}$  laminae longitudine, stylo apice recto v. leviter recurvo.

Area geographica—Yarkand (?), Sibiria, Europa, mons Atlas.

*var. θ. recticornu P. B.*,"

caule elato folioso plurifloro, foliis caulinis fere omnibus biter-natis vel ternatis, foliolo fol. bas. medio lato trilido v. tripartito partitionibus divergentibus lineari-oblongis longe cuneatis inciso-crenatis crenis obtusis, sepalis oblongis subobtusis circiter 2 cm. longis, petalorum lamina 10–13 mm. longis apice rotundato-truncatis, staminibus limbum attingentibus v. 3 mm. superantibus, calcaribus subulatis rectis v. vix incurvis laminam subaequantibus. Vidi exemplaria in herbario Kurzii e Bavaria missa; calcaria in formis norwegianis etiam leviter incurvata inveni.

*var. ε. Ebneri*" *Zimtr.* (*Aquilegia Ebneri, Zimmerer* No. 2),

caulo basim versus glabrescente 25–40 cm. altitudine, foliis bas. biter-natis, foliis caulinis inferioribus trifoliolatis v. trisectis, foliolis sessilibus v. breviter petiolulatis infra dense pubescentibus medio 19–22 mm. longo fere ad tertiam partem trilobo lobo medio cuneato-obovato, floribus 2 v. 4 rubescenti-caeruleis, sepalis ovato-oblongis circiter 18 mm. longis, petalorum lamina rotundato-truncata circiter 9 mm. longa, calcaribus lamina circiter 6 mm. longioribus hamatis, staminibus petala paullo superantibus, stylo apice uncinato.—Styria.

*var. κ. dinarica*" *Beck* (*A. dinarica Beck in Ann. Hofmus.*),

caule 1–2-floro, ad 20 cm. altitudine, usque a basi uti petioli pilis patentibus glanduliferis obsito, foliis pubescentibus basilaribus ternatis foliolis conspicue petiolulatis subcordatis tripartitis rarius trisectis partitionibus inciso-crenatis, floribus pilosis, sepalis ovato-oblongis 2–3 cm. longis, albis v. caerulescentibus patentibus, petalorum lamina caerulescenti rotundato-truncata 11–20 mm. longa

calcaribus graciliter conicis hamato-incurvis laminae subaequilongis, staminibus fero laminae longitudine, stylis quam ovaria paullo brevioribus.—Bosnia.

*var. λ. eynensis* P. B.",

caule fere ad apicem usque simplici 2–3 floro 25–35 cm. altitudine ut petioli basim versus parce hirtio sub floribus glanduloso-pubescenti; foliis bas. biternatis, petiolis 5–10 cm. longis, petiolulis primariis 15–30 mm. longis foliolis breviter petiolulatis v. sessilibus aut subglabris aut utrinque dense pubescentibus basi obtusis, medio subrotundo v. fero reniformi 15–18 mm. longo fere ad medium trilobo lateralibus oblique reniformibus profundo bilobis, lobis crenatis aut bi v. trilobulatis, crenis integerrimis v. paucirenulatis obtusis v. rotundato-truncatis; folio caulino infimo a basi remoto ternato, foliolis tripartitis partitionibus crenato-incisis; foliis superioribus 2 v. 3, trifoliolatis, foliolis oblongo-lanceolatis pedunculari lineari, sepalis 23–26 mm. longis late ovatis acutis unguiculatis, petalorum lamina truncata v. retusa 10–13 mm. longa, calcaribus uncinatim incurvis quam lamina 1–4 millimetris longioribus, staminibus limbum attingentibus, parastemonibus lineari-lanceolatis ovarii paullo longioribus, stylis apice recurvis antheras vix attingentibus.

Vidi exemplaria pyrenaica in valle d' Eynes lecta. Flos omnino *A. vulgaris* typicae, sed differt caule subsimplici haud conspicue folioso foliis foliolisque minoribus; ab *A. Bertolonii* folio caulino infimo basilaribus subconformi (et ab iis remoto), lamina petalorum plane truncata v. retusa distinguenda. An *A. pyrenaica* var. *β*. decipiens Grenier et Godron, cuius calcaria dicuntur paulum curvata et lamina retusa; an *A. vulgaris* var. *hirsutissima* quam Lespeyres in Flora Pyrenaica nasci scribit ad 'Pont de Comps'?

*var. μ. paraplesia* Schur (*A. paraplesia* Zimmeter No. 6),

caule 20–30 cm. altitudine basim versus glabrescente subnudo 2–3 floro, foliis basilaribus biternatis, foliolis sessilibus glabris medio basi cuneato ad tertiam partem trilobo, floribus rubescenti-caeruleis (atroviolaceis), sepalis ovato-lanceolatis acutis circiter 32 mm. longis petalorum limbum rotundato-truncatum fere 18 mm. superantibus, staminibus calcaribusque lamina longioribus stylisque limbum attingentibus.—Transsilvania.

*var. ν. nigricans* Baumgarten (*A. nigricans* Bmg. = *A. Sternbergii* Robb., Zimmeter No. 7, = *A. Haenkeana* Koch),

caule 25–40 cm. altitudine 1–5 floro basim versus glabrescente, foliis biternatis, foliolis fl. bas. saepissime subsessilibus sessilibusve glabris v. vix puberulis, medio ad quartam tertiamve partem trilobo

basi late connato, lobo medio breviter oblongo v. connato-obovato, folio caulino infimo basilaribus saepius subconformi, superioribus subsessilibus trifoliolatis trisectisve saepe profundo incis, floribus azureis v. dilute caeruleis v. lilacino-purpureis, sepalis 27–34 mm. longis, petalorum lamina apice rotundato-truncata v. obtusa 13–15 mm. longa, calcaribus hamato-incurvis quam lamina 3–10 millimetris longioribus, staminibus laminam 1–3 mm. superantibus, stylis apice recurvis v. rectis.—Alpes, Transsylvania.

Sunt in herbariis indicis exemplaria in Gilgit et Kunáwar lecta quae sunt valde similia *A. nigricanti*; sed calcaria sunt paullo minus incurva et laminam 1–3 millimetris tantum superant; revera formae *A. Moorcroftianae* Wall.

### Descriptio subspeciei.

Rhizoma descendens fusiforme irregulariter cylindricum interdum pluriceps, cortice nigra v. brunnea, collo petalorum reliquiis vestitum et 5–20 mm. crassitudine, caules 1–3 edens. Caulis erectus superne ramosus raro simplex teres v. obscure angulatus laevis v. leviter sulcatus florifer 25–120 cm. altitudine, sparse foliosus interdum subnudus, aut totus pilis crispulis v. patentissimis plus minus glandulosus obsitus aut basin versus glabrescens, nunc sine viscositate nunc insigniter viscosus. Folia basilaria conferta longissimo petiolata caule florifero manifesto breviora (8–) 20–35 cm. longa; petiolus basi in vaginam lanceolatam membranaceam 7–30 mm. longam et pro ratione petioli brevem convergentem plurierviā dilatatus supra canaliculatus 5–30 mm. longus, 1–3 mm. crassitudine, glaber v. puberulus v. glanduloso-hirtus; lamina bitermata, rarius ternata atque foliolis trisectis v. tripartitis; petioli primarii tenuiter sulcati v. esulci, canaliculati, terminalis (1–) 4–9 cm. longus, 0.8–1.5 mm. crassitudine, laterales  $\frac{1}{2}$ – $\frac{2}{3}$  terminalis longitudine; foliola membranacea interdum textura firmiore viridia infra pallidiora v. glauca tenuiter nervosa supra glabra v. puberula infra glabra v. puberula v. dense pubescentia; terminale longiuscule petiolulatum rarius sessile circumscriptione breviter cuneato-obovatum v. subrhombeum v. reniforme basi obtusa v. rarius acuta lata v. subanguste cuneatum v. subrotundatum, (10–) 15–50 mm. longum latitudinis  $\frac{1}{2}$ – $\frac{2}{3}$  longitudinis, ad quartam v. tertiam partem palmatim trilobum v. ad medium v. ad tres partes tripartitum raro (in ternatis) trisectum, lobo medio cuneate lateque obovato v. rotundo v. breviter lineari-oblongo apice grosse crenato, crenis trilobis, rarius trifido, laciniis creniave apice obtusis v. retusis integerrimis v. paucicrenulatis; lobis lateralibus breviter oblongis v. oblique ovatis obovatisve inaequaliter bifidis v. bilobulatis v. grosse crenatis; foliola lateralia oblique obovata v. rotundato-trapezoides breviter petiolulata v. sessilia inaequaliter biloba v. bipartita, lobo interno bi v. trilobulato v. fuso, externo semel crenato-inciso crenato vel lobis creniave crenulatis v. integerrimis.

Folia caulina inferiora, si adsunt, pauca basilaribus subconformia sed brevius petiolata, superiorum petioli brevissimi saepe ad vaginam brevem reducti, folia summa saepe trifoliolata v. trisecta foliolis mediocribus v. parvis saepe ovato-oblongis v. lanceolatis integerrimis v. parce incis; folia peduncularia, si adsunt, bracteiformia parva lanceolata. Inflorescentia rarius uniflora saepissime racemosa

v. paniculato-corymbosa et 2-15 flora, ramis patentibus v. erecto-patulis; pedunculi 3-9 cm. longi puberali v. pilis brevibus patentissimis densissime pubescentes haud raro visciduli. Flores saepius maiusculi, caerulei v. caeruleo-violacei v. purpurei, rarius albi v. atro-purpurei. Sepala ovata v. ovato-lanceolata basi saepe abrupte in unguem constricta apicem versus cuneato-acutata v. breviter acuminata, apice acuto, nervis ramosis 3 percursa, 22-35, rarius 18 v. fore 40 mm. longa latitudine  $\frac{1}{2}$  -  $\frac{1}{2}$  longitudinis, petala 12-22 millimetris excedentia raro iis vix longiora, dorso glabra v. plus minus pubescentia. Petalorum lamina dorso pilosula v. glabra oblonga apice rotundato-truncato obtusa v. retusa raro plane rotundata 9-15 mm. longa; calcar conicum sed apicem versus sensim subcylindricum et uncinatim incurvum rarissimo subrectum apice nectarifero capitatum, distantia a puncto insertionis ad partem infimam calcaris 10-19 mm. quam lamina saepissime 1-5 (-8) mm. longior raro subbrevior v. subduplo brevior. Stamina numerosa inaequilonga petala 1-3 rarius 3-10 mm. superantia v. iis vix breviora; filamenta e basi dilatata gradatim angustata; antherae oblongae muticae 1-2 mm. longae. Parastemonae lanceolati v. lanceolato-lineares apice acuti apiculati ovaria 1-3 mm. superantes margine plus minus undulati, interdum antheris parvis instructi. Pistilla 5-7, erecta, 12-18 mm. longa, stamina vix superantia v. iis rarius paululo breviora; ovaria cylindrica 3-6 mm. longa in stylum sensim v. subabrupte attenuata dense hirta; stylus filiformis apice rectus v. plus minus recurvus, ovarii saepissime 2-5 mm. longior raro iis fore aequalis. Folliculi saepissime 5, chartacei, erecti, paralleli rarius a medio divergentim recurvi, e basi ovoidea recurvo-attenuati, stylo filiformi 7-10 mm. longo rostrati, nervis obliquis creberrimis plus minus anastomosantibus conspicue reticulati, sine stylo 18-25 mm. longi. Semina numerosa oblongo-obovoides, sectione transversa subtriangularia, dorso modice curvata, ventre carinata, nigra v. raro atro-brunnea, nitida v. rarius subopaca et granulata, 2-2.5 mm. longa, crebro minutissimeque punctulata.

### Tabella ad varietates *Aquilegiae vulgaris* typicae determinandas.

- I. Caulis saepius conspicuo foliosus ramosus altitudine 35-120 cm., folia caulina inferiora basilaribus subconformia saepe fore eadem magnitudine sed breviter brevissimove (rarius longiuscule) petiolata, flores 3 v. saepius plures.

A. Flores discolores sepalis cyaneis v. lilacinis (25-35 mm. longis ovato-acuminatis), petalorum lamina alba, calcaria non capitata.

21. Folliculi paralleli subrecti, semina nitida subtilissime punctulata.

**A. caucasica Ledeb.**

22. Folliculi usque a medio divergentim recurvi, semina opaca granulata.

**A. olympica Boiss.**

B. Flores concolores, calcaria plus minus distincte capitata.

23. Stamina petalorum lamina multo breviora, calcar lamina subduplo brevius.

**A. Bernardi Grenier.**

24. Stamina pet. limbum fore attingentia v. eo conspicue longiora.

a. Sepala pet. lamina fere triplo longiora ovato-lanceolata latitudine vix  $\frac{1}{2}$  longitudinis (circa 38 mm. longo 12 mm. lata violaceo-caerulea, stamina limbum 5 mm. superantia).

**A. longisepala Zimr.**

- b. Sepala pet. lamina subduplo longiora latitudine  $\frac{1}{2}$  longitudinis.  
 a. Stamina petalorum limbum 3-10 mm. superantia in columnam subcylindricam associata et si 3 mm. tantum longiora flores atro-purpurei, (purpureo-violascentes), caeteroqui flores saepius atro-purpurei rarius caerulei.

**A. atrata** Koch.

- b. Stamina petalorum limbum fere attingentia v. eum 3 mm. superantia, flores colore varia.

- a. Caulis usque a basi, uti petioli petiolulique, dense glanduloso-hirtus. Flores purpurei v. cinnamoneo-rubescetes.

**A. Karelini** Baker<sup>41</sup>.

- $\beta$ . Caulis basim versus glaber v. vix puberulus, flores caerulei.

- aa. Calcar uncinatim incurvum.

**A. varia** Maly<sup>42</sup>.

- $\beta\beta$ . Calcar subrectum v. leviter incurvum.

**A. rocticornu** P. B.<sup>43</sup>

- II. Caulis 20-35 raro 40 cm. altitudine, aspectum subnudum praebens propter folia caulina basilaribus saepissimo manifesto minora, infimo saepe a basi remoto. Flores 1-2 rarius 3 rarissimo 4.

- A. Sepala circiter 18 mm. longa, folia infra dense pubescentia.

**A. Ebneri** Zmtr.

- B. Sepala plus 20 mm. longa.

- $\beta$ . Caulis a basi, uti petioli petiolulique, pilis glanduliferis obsitus, sepala alba v. caerulescentia, folia plura tornata.

**A. dinarica** Beck.

- $\beta\beta$ . Caulis basim versus parce hirtus v. glaber, flores violacei v. caerulei v. rubescenti-cyanei.

- a. Caulis basim versus parce hirtus, foliola subtus subglabra v. utrinque dense pubescentia, sepala 23-27 mm. longa.

**A. eynensis** P. B.<sup>44</sup>

- b. Caulis basim versus glaber v. puberulus, foliola glabra v. infra vix puberula, sepala (27-) 30-35 mm. longa.

- a. Flores cyaneo-rubescetes, sepala petalorum limbum circiter 18 mm. superantia, stamina limbum vix attingentia.

**A. paraplesia** Schur.

- b. Flores caerulei rarius purpureo-lilacini, sepala petalorum limbum 6-15 mm. superantia, stamina limbum 1-3 mm. superantia.

**A. nigricans** Bmgf.

- III. **Aquilegia alpina** Lin. (*Aquilegia vulgaris* subsp. *alpina* H. f. et T. in F. B. I. ex parte. *Aquilegia alpina* Lin.; *Allioni*, Flor. Ped. tab. I; *Reichb.* Flor. Germ. tab. CXIX.),

foliis radicalibus omnibus v. pluribus biternatis, foliolis margine sese plus minus obtegentibus terminali reniformi v. suborbiculari fere ad medium trifido v. profundius tripartito, laciniiis crenato-incisim, folio caulino infimo petiolato foliolis saepius in lacinias magis dis-



tincte lineares incisae, floribus subconcoloribus caeruleis 32–45 mm. longis late ovatis, calcare crassiuscule conico subrecto v. manifesto incurvo quam lamina truncato-rotundata paullo brevior v. longior staminibus lamina 2–6 mm. brevioribus, carpellis 5, folliculis 25–30 mm. longis.

Area geographica—Alpes, Apennini boreales, (Pyrenaei montes?), Himalaya occidentalis.

*var. a. typica*, pistillis antheras vix v. haud attingentibus.

*var. β. himalaica* P. B., pistillis antheras 2–3 mm. superantibus.

Forma affinis A. Moorcroftianae Wall. *var. suaveolenti* et A. nivali Falc.

*var. saccocentrae*. Garhwal (K.).

Formae etiam occurrunt in Himalaya occidentali et in Gilgit, quae mediae sunt inter A. alpina Lin. et A. Moorcroftiana Wall.

### Descriptio Subspeciei.

Rhizoma fusiforme v. subcylindricum, descendens, vaginis foliorum fusorum plus minus tectum, collo 2–6 mm. crassitudine, caulem solitarium edens.

Caulis teres erectus rectus v. vix flexuosus simplex v. rarius superne parce ramosus manifesto sulcatus v. esulcus, florifer 2J–40 cm. altitudine, prope basim 1.5–4 mm. crassitudine, plus minus foliosum, inferno glabrescens v. hirtulus, sub flore dense minuteque glanduloso-hirtus.

Folia basilaria longissime petiolata caule manifesto breviora (5–) 10–25 cm. longa; petiolus basi in vaginam membranaceam late v. angusto lancولاتam convergentim nervosam 1–2 cm. longam et pro ratione petioli perbreve dilatatus, lamina aequilongior v. quadruplo longior, supra sulcatus subtiles, supra vaginam 1–3 mm. crassitudine, puberulus; lamina biternata, v. folii infimi ternata sed foliolis fere ad basim tripartitis; petioluli primarii tennes v. subcrassi supra tenuiter canaliculati 0.5–1 (–2) mm. crassitudine, terminalis 16–30 (–40) mm. longus, laterales  $\frac{2}{3}$ – $\frac{3}{4}$  terminalis longitudine; foliola membranacea viridia, infra pallidiora, glabra v. vix hirtula marginibus plus minus saepe obtegentia, terminale breviter petiolulatum v. sessile circumscriptione subreniforme v. suborbiculare, aut versus basim obtusam subcuneatum aut basi subtruncatum, 12–40 mm. longum, latitudine  $\frac{1}{2}$ – $\frac{3}{4}$  longitudinis, saepius fere ad medium trifidum v. ad tres partes tripartitum, lacinia media obovato-oblonga basim versus cuneata latitudine  $\frac{1}{2}$ – $\frac{3}{4}$  longitudinis, apice crenato-incisa, crenis saepe parvis crenulatis, laciniae laterales late oblique obovatis v. breviter longiuscule lineari-oblongis inaequaliter crenato-incisis raro integris, lacinula externa breviter oblonga apice subrotundata saepe crenula instructa, lacinula interna saepe crenis tribus instructa; foliola lateralia rarius fere symmetrica atque terminali conformia, saepius asymmetrica reniformia late obovata profunde bipartita, partitione externa late et oblique obovato-cuneata hirta aut bipartita, interna inaequaliter biloba lobulo interno saepius crenis 2 externo crenis tribus incisae, crenis omnibus apice obtusis v. subacutis rarius rotundatis; folium primarium interdum foliis basilaribus Aquilegiae pyrenaeicae omnino conforme.

Folium caulinum inferum longiuscule petiolatum conspicue vaginatum, petiolo laminae saepe subaequilongo, lamina biternata v. subbiternata interdum laminis fol. bas. conformi saepius laciniae pro ratione longitudinis angustioribus ideoque magis

distincte linearibus; folia media 1-2, aut nulla, brevissime petiolata, petiolo ad vaginam reducto, lamina aut biternata et laminis folli infimi subconformi aut tornata et foliolis tripartitis v. trisectis, partitionibus aut integerrimis lanceolatis aut incisae lacinulis lanceolato-linearibus subacutis; folia summa 1-2 bracteiformia linearis acuta 1-2 cm. longa, interdum nulla.

Flores magni, suberecti v. nutantes. Sepala 32-45 mm. longa (rarissime breviora), petalorum limbum 10-22 mm. superantia, late ovata, basi in unguem brevem constricta, apice acuta v. obtusa cuneato-acutata aut breviter acuminata, latitudine fere  $\frac{1}{2}$  longitudinis, caerulea rarius albidula v. rubescentia apice saepissime virescentia. Petala campanulam efficientia, lamina late obovata apice truncato-rotundata 13-20 mm. longa, sepalis magis dilute caerulea; calcar crassiusculo conicum versus apicem subcapitatum sensim attenuatum 10-25 mm. longum suberectum v. saepius incurvum rarissime fere uncinatum interdum lamina paullo brevius saepius ea 1-6 mm. longius. sub apice saepe 1 5-2 mm. crassitudine. Stamina numerosa (40-50) inaequilonga, longiora lamina petalorum 2-6 mm. breviora, glabra; filamenta a basi plus minus dilatata gradatim attenuata, longiora ( $\frac{1}{2}$ ) 8-12 mm. longa; antherae oblongae muticae fere 2 mm. longae fusco-virentes. Parastomones lanceolati undulati apice acuti 7-10 mm. longi, ovaria superantes, interdum pistilla subaequantur, Pistilla 5 erecta 10-13 mm. longa, stamina superantia v. aequantia interdum iis breviora; ovaria subcylindrica 6-7 mm. longa dense hirta; styli subulati infra hirti, ovario paullo v. 3 mm. breviores, apice recti v. leviter recurvi.

Folliculi 5, subparalleli, e basi ovoidea apicem versus attenuati, 25-30 mm. longi, hirti v. pubescentes, stylo 5-8 mm. longo rostrati.

Semina nigra, nitida, obovoides.

IV. *Aquilegia Bertolonii*, Schott (*Aquilegia pyrenaica Bertoloni*, et *Reichb.*, Ic. Fl. Germ. 4732; *A. Bertolonii Schott*; *A. Reuteri Boiss.*),

foliis basilaribus saepissimo biternatis, foliolis margine sese obtegentibus, terminali lato obtriangulari trilobo 12-20 mm. longo, lobis crenatis crenis mediis rotundatis v. retusis, folio caulino infimo (fere semper) basilaribus multo minore trifoliolato foliolis lanceolatis integris v. fissis, inflorescentia 1-4-flora, floribus concoloribus, sepalis ovatis 24-30 mm. longis, petalis rotundatis v. subtrilobatis, calcaribus conico-subulatis hamato-incurvis, laminam subaequantibus v. ea paullo longioribus, folliculis 12-15 mm. longis.

### Descriptio subspeciei.

Rhizoma fusiforme collo, reliquiis foliorum plus minus tectum. Caulis erectus simplex v. superne modice ramosus vix sulcatus 15-50 cm. altitudine subnudus, ant basin versus glabrescens aut totus tenuiter patentimque glanduloso-pubescent.

Folia basilaria longissime petiolata; petiolus basi in vaginam late lanceolatam brevem dilatatus, 4-20 cm. longus, glaber v. villosus-pubescent; lamina biternata, rarius ternata, foliolis reniformibus profunde trilobis v. trisectis; petioluli primarii saepe villosuli, intermedio 8-30 mm. longo, lateralibus fere  $\frac{1}{2}$  terminalis longitudine; foliola sessilia v. breviter petiolata, textura subfirma, supra viridia et glabra, infra pallidiora et glabra v. puberula, margine sese obtegentia, ad marginem interdum

ciliatula; terminale foliorum biternatorum late triangulare basi saepe obtusa late cuneatum 12–20 mm. longum, latitudine  $\frac{1}{2}$  longitudinis, ad tertiam partem v. ad medium regulariter v. irregulariter trilobum, lobo medio breviter oblongo saepissime crenis tribus integerrimis v. vix crenulatis inciso, lobis lateralibus breviter oblongis v. subobovatis crenis binis inaequalibus praeditis; foliola lateralia asymmetrice lateque obovata v. subreniformia terminali angustiora v. latiora basi lato cuneata v. obscure cordata, ad tertiam partem v. fere ad basim inaequaliter biloba, lobo interno tri- externo bicornato, crenis foliorum omnium intermediis apice apiculato v. mutico rotundato-truncatis v. retusis, lateralibus obtusis.

Folia caulina saepissimo basilaribus dissimilia; infimum, si est foliis bas. simile, paullum a basi caulis remotum; folium infimum saepissime basilaribus multo minus, trifoliolatum, foliis lanceolatis, intermedio integro v. trifido, lateralibus interdum bifidis; superiora simplicia lineari-lanceolata, peduncularia 8–12 mm. longa. Flos lilacinus v. caeruleus, solitarius v. indurascens 2–4 flora corymboso-racemosa. Pedunculi graciles, laterales interdum 15 cm. longi, visciduli.

Sepala ovata v. ovato-oblonga, apice acuta v. brevissime acuminata, basi in unguem conspicuum constricta, 24–30 mm. longa, latitudine circiter  $\frac{1}{2}$  longitudinis, dorso puberula, petalorum limbum 6–10 mm. superantia. Petalorum lamina apice rotundata v. subtruncata, 14–20 mm. longa; calcar e basi conica subulatum hamatum (rarius levius incurvum). laminae aequilongum v. ea paullo longius. Stamina petalorum limbum aequantia v. saepius eo 1–7 mm. breviora; filamenta angusta, longiora circa 1 cm. longa; antherae oblongae, 1.5–2 mm. longae, nauticae. Parastemonae lanceolati, apice apiculato obtusi v. acuti, vix v. manifesto undulati, 7–8 mm. longi, ovariis subaequilongis. Pistilla 5; ovaria obato-oblonga, 7–8 mm. longa, hirta, in stylum subulatum leviter recurvum ovarii fere dimidio breviorum gradatim attenuata. Folliculi 5, 12–15 mm. longi, hirti.

Area geographica—Apennini, Alpes pedemontani et maritimi, (Pyrenaei montes?).

Hae subspecies congeries esse videtur formarum mediarum; nam non solum folia similia sunt foliis *A. pyrenaicae*, sed transitus etiam animadverti possunt partim in stirpes appenninas *A. alpinae* floribus quam in formis typicis minoribus atque calcaribus multum curvatis, foliis tamen caulinis *A. alpinae* genuinae, partim in *A. Einseleanae*, cuius calcaria haud raro fere hamata sunt. Affinitatibus minus artis etiam cum *A. nigricanti* et *A. eynensi* connexa. Stirpes in Afghanistan orientali crescentes et varietatem subspeciei *Meorcroftianae* efficiunt haud raro *A. Bertolonii* valde similes, sed calcaria recta vel vix curvata.

**V. *Aquilegia viscosa* Gouan**, (*Aquilegia glandulosa*, Gouan Illustrationes botanicae tab. 19 fig. 1, Flor. Mousp. 267; = *Aquilegia Einseleana* Schults. = *A. Bauhini* Schott. = *A. pyrenaica* Koch. = *A. Kitaibelii* Nyman ex parte (= *A. pyrenaica* var.  $\beta$  decipiens G. et G. ?); et *A. glandulosa* W. et Kit. = *A. Kitaibelii* Schott. = *A. pyrenaica Visiani*; *A. thaliotrifolia* Schott.),

foliis basilaribus saepissime biternatis, foliolis subdistantibus

brevissime petiolulatis v. sessilibus, terminali triangulariter cuneato-obovato latitudine  $\frac{1}{2}$ — $\frac{2}{3}$ — $\frac{1}{2}$  longitudinis, folio caulino infimo (v. altero) ternato foliolis segmentisve lanceolatis v. oblanceolatis, summis lanceolato-linearibus, floribus parvulis v. mediocribus caeruleis v. violaceis, sepalis oblongis v. oblongo-lanceolatis 14–27 mm. longis, petalorum lamina rotundata 9–16 mm. longa, calcaribus rectis v. incurvis neque uncinatis, staminibus pot. lamina 2–6 mm. brevioribus, folliculis 5–6 cylindricis patulis 8–15 mm. longis.

Area geographica—Montes Europae centralis. In Himalaya non invenitur; sed varietas *A. Moorcroftianae* a nobis Winterbottomiana dicta quoad folia valde similis *A. thalictrifoliae*, et varietas altera, subaphylla, caulo foliisque glanduloso-hirtis instructa, *A. viscosam* typicam in mentem revocat.

*var. a. "Einseleana" Schulz,*

foliolis foliorum basilarium biternatorum infra glabris v. parco rarius subdense glanduloso-puberulis ad quartam vel tertiam partem rarius ad medium usque trilobis lobis saepissime rotundatis v. rotundato-subquadratis v. cuneate-obovato-oblongis, foliis caulinis aut minimis aut conspicuis foliis basilaribus subconformibus sed segmentis magis linearibus, superioribus saepius trisectis v. simplicibus segmentis oblanceolatis v. linearibus, calcare laminae subaequilongo rarius  $\frac{2}{3}$  eius longitudine, folliculis subaparse glanduloso-hirtulis.—Alpes, Gallia austr.

*var. β. "thalictrifolia" Schott,*

foliis glanduloso-hirtis et ciliatis, foliolis mediis fol. bas. ad medium v. tertiam partem trifidis longo et saepe subanguste cuneatis laciniis lineari-oblongis inciso-serratis, foliis caulina inferioribus nonnullis foliis basilaribus subconformibus sed laciniis magis linearibus, superioribus trifoliatis v. trisectis segmentis rite lanceolatis, calcare laminae aequilongo v. paullo brevioris, folliculis viscoso-hirtulis.—Alpes.

*var. γ. "Kitabelii" Schott,*

foliolis foliorum basilarium villosopubescentibus, foliis caulinis nullis vel 1–2 linearibus v. infimo trisecto, calcare lamina fere duplo brevioris, folliculis dense hirtis.—Croatia.

### Descriptio subspeciei.

Rhizoma directione varia, subfusiforme, atrophrunneum, foliorum reliquiis plus minusve vestitum, caules 1–2 edens. Caulis erectus simplex v. superne ramosus teres laevis v. vix sulcatus, florifer altitudine 12–50 cm. prope basim 1–2.5 mm. crassitudine subnudus supra basim aut glabrescens aut villosopubescent atque plus minus

glandulosus aut parce v. densiuscule glanduloso-hirtus; rami, ubi adsunt, graciles patuli.

Folia basilaria longissime petiolata 3-20 cm. longa; petioli basi in vaginam lanceolatam membranaceam 3-7 mm. longam et pro ratione petioli brevissimam convergentim nervosam dilatati, basi breviter canaliculati subteretes, 2-14 cm. longi, 0.5-1.5 mm. crassitudine, subglabri v. pilosuli v. parce glanduloso-hirti; lamina ternata v. biternata, foliolis biternatorum subdistantibus; petioluli primarii tenues leviter sulcati, terminalis 2-4.5, saepius 5-15 mm. longus, laminae aequilongus v. ea manifesto longior, laterales terminali aut aequilongi aut subduplo breviores; foliola textura firmiora, aut parte utraque glabra aut supra glabra infra puberula v. plus minus glandulosa aut utrinque glanduloso-pubescentia infra pallidiora; foliolium terminale foliorum biternatorum brevissimo petiolulatum v. subsessile, triangulare cuneato-obovatum, (5-) 9-20 (-25) mm. longum, versus basim acutam v. obtusiusculam insigniter cuneatum, latitudo  $\frac{1}{2}$ - $\frac{3}{4}$ - $\frac{1}{2}$  longitudinis, apice vix ad tertiam partem v. paullo ultra medium trilobum v. trifidum, lobo medio subquadrato v. lineari-oblongo apice crenis tribus obtusis v. rotundatis inciso, lateralibus breviter semi-obovatis v. lineari-oblongis integerrimis v. crenis binis inaequaliter incis; foliola lateralia subsessilia v. plano sessilia asymmetrico obovata rarius subtrapezoidica inaequaliter biloba v. rarius bisecta, lobo interno subobovato trifido v. saepissime crenis ternis subinaequalibus inciso, lobo externo bifido v. saepissime integerrimo bicerenato; foliola foliorum basilarium ternatorum subreniformia v. semiorbicularia, basi truncata v. subcordata, ad duas partes v. fere ad basim palmatim tripartita partitione media cuneato-obovata lateralibus oblique obovatis, omnibus crenatis v. crenato-lobatis.

Folium caulinum infimum interdum foliis basilaribus conforme v. saepius ternatum foliolis segmentisve lanceolatis v. oblanceolatis interdum longissimo cuneatis, aut integerrimis apice obtusis, aut incis; folia intermedia subsessilia, petiolo ad vaginam reducto, trifoliolata, foliolis breviter petiolulatis, aut integerrimis atque oblanceolatis apice rotundatis obtusis acutisve, aut rarius basilaribus conformibus sed minoribus, aut parce incis; folia summa bracteoformia saepissime integra lanceolato-linearia 3-14 mm. longa.

Flores parvuli solitarii v. 2-5-10 in racemum paniculamve subcorymbosam laxissimam dispositi, nantes v. suberecti, caerulei v. violacei; ramis laterales inflorescentiae gracilibus infimo interdum 20 cm. longo. Pedunculi apice dense viscoso-hirti. Sepala elliptico-oblonga v. oblongo-lanceolata, apice acuto breviter acuminata, basi in unguem brevem constricta, 14-27 mm. longa, latitudine  $\frac{1}{2}$ - $\frac{3}{4}$  longitudinis, glabra v. dorso vix puberula, petala 3-14 mm. superantia. Petalorum lamina obovato, apice saepissime rotundata rarissime rotundato-subtruncata; calcar subulatum apice nectarifero capitatum, rectum v. manifesto incurvum neque tamen uncinatum quam lamina 2 mm. longius vel 1-16 mm. brevius,  $\frac{1}{2}$ - $\frac{3}{4}$  laminae longitudine. Stamina numerosa inaequalia, limbo petalorum 2-6 mm. breviora, glabra; filamenta a basi modice dilatata in apicem filiformem angustata; antherae oblongo-ellipsoideae circa 1.5 mm. longae muticae v. distincte apiculatae flavae. Parastemonies lanceolati 6-7 mm. longi apice acuti, plus minus undulati, ovaria superantes. Pistilla 5-6 erecta, 7-10 mm. longa; ovaria cylindrica dense hirta; styli filiformes, apice recti v. ad ultimum recurvi, infra hirti, ovario subaequilongi.

Folliculi 5-6, cylindrici, patuli, apice rotundato obliquo, stylo persistenti filiformi 4-6 mm. longo rostrati, nervoso-reticulati, 12-15 mm. longi, pilosuli v. glanduloso-hirti.

**VI. *Aquilegia grata* Maly, (*Aquilegia grata* Maly in Zimmerer, Mon. Aq. No. 13).**

Caule 12–25 cm. altitudine, uti petioli petioluli foliola, usque a basi glanduloso-hirto, foliis basilaribus biternatis, foliolis magnis rotundato-deltaideis margine sese plus minus obtegentibus, foliis caulinis inf. basilaribus subconformibus, floribus 3–5 pallide caeruleis, sepalis circiter 2 cm. longis ovatis, fere 1.5 cm. petala superantibus, pet. lamina circiter 6 mm. longa, calcare recto v. paullum incurvo quam lamina subduplo longiore, staminibus limbum superantibus, folliculis brevibus.—Croatia, Serbia.

**VII. *Aquilegia pyrenaica* DC. (*Aquilegia pyrenaica* DC. nec Koch neque Bertoloni nec Visiani),**

caule 10–30 cm. altitudine simplicis v. subsimplicis subnudo v. vix folioso, foliis basilaribus ternatis v. saepius biternatis foliolis approximatis v. margine sese obtegentibus glaberrimis v. infra vix puberulis, terminali late rhombico v. subreniformi basi late cuneato v. subcordato 3–18 mm. longo, inflorescentia uni v. pauciflora, floribus concoloribus caeruleis rarius discoloribus, sepalis ovatis 16–26 mm. longis, petalorum lamina apice truncato-rotundata v. plane rotundata, calcare recto v. leviter incurvo, staminibus lamina brevioribus, carpellis fere 5 hirtis, folliculis subparallelis 12–15 mm. longis.

var.  **$\alpha$ . vera**, floribus concoloribus, sepalis saepius plus 2 cm. (sed etiam 16 mm.) longis.

var.  **$\beta$ . discolor** Levier et Ler., floribus discoloribus, sepalis vix 2 cm. longis.

Vidimus exemplaria rara subsp. nivalis, o Kashmiria allata, a var.  $\alpha$ . huius subspeciei nullo modo distinguenda.

**Descriptio subspeciei.**

**Rhizoma** horizontale v. descendens, simplex, fusiforme v. cylindricum, atro-branneum, crassitudine 2–5 mm., collo foliorum reliquiis vestitum, caulem solitarium edens.

Caulis erectus simplex v. apice vix ramosus subteres sulcatus plus minus fistulosus, florifer 10–25 (30) cm. altitudine, prope basim 1–2 mm. crassitudine basi foliosus, infra inflorescentiam nudus v. folio uno alterove instructus, subglaber v. puberulus.

Folia basilaria longissime petiolata sed caule saepissime manifesto breviora raro eum aequantia 3–15 cm. longa; petiolus basi in vaginam membranaceam lanceolatum 6–15 mm. longam et pro ratione petioli brevem convergentem plurinerviam dilatatus, 2–12 cm. longus, 0.7–1.5 mm. crassitudine, supra leviter canaliculatus, puberulus v. glaber; lamina aut ternata atque foliolis trisectis v. tripartitis, aut saepius biternatis; petioluli primarii tenuiter sulcati glabri v. subglabri, terminalis 7–15 mm. longus, laterales  $\frac{1}{2}$ – $\frac{3}{4}$  terminalis longitudine; foliola membranacea, valde approximata et

sese margine obtegentia supra viridia, infra pallidiora v. glauca, glaberrima v. infra vix puberula, lobis vix distantibus v. sese attingentibus v. paullum se obtegentibus; terminale late rhombeum v. subreniforme, basi late cuneatum v. subcordatum v. rotundato-truncatum, 3-18 mm. longum, latitudine  $\frac{1}{2}$ - $\frac{3}{4}$  longitudinis saepissime latiore quam longiore, ad tertiam partem v. ad medium trilobum v. ultra medium tripartitum v. raro ad basim usque trisectum, lobo medio obovato apice subtruncato crenis tribus instructo, lobis lateralibus breviter oblongis v. oblique obovatis saepissime inciso-lobulatis lobulis parce crenatis v. rarius integerrimis, petiolulo subnullo v. 1-5 mm. longo, uti laterales, glabro v. pilosulo; foliola lateralia brevius petiolulata v. sessilia reniformia v. late trapezoidea v. asymmetricice truncato-obovata profunde inaequaliterque bipartita, partitione interna oblique triangulari v. subreniformi saepe bifida v. lobulis tribus crenato-incisa, partitione externa obovato-oblonga v. semiovata saepissime lobulis binis incisa, lobulis crenisve haud raro parce et subobscuris crenulatis apice latè obtusis v. rotundatis v. subretusis.

Folia caulina inferiora uno alterovo longe v. breviter petiolata, foliis radicalibus aut conformia aut simpliciora aut plane nulla; superiora (floralia) breviter brevissimeve petiolata, petiolo saepius ad vaginam brevem reducto, lamina aut trifoliolata aut trisecta, foliolis v. segmentis triseotis divisionibus lineari-lanceolatis apice acutis v. subobtusis, summa v. omnia saepe integra lanceolato-linearia 7-12 mm. longa. Inflorescentia uni v. pauciflora, floribus modicioribus nutantibus v. suberectis, concoloribus caeruleis v. petalis albis discoloribus. Pedunculi glanduloso-pubescentes. Sepala late ovata v. ovato-oblonga, basi in unguem brevem contracta, apice subacutè breviter acuminata, nervis tribus ramosissimis percurta, 16-26 mm. longa latitudine  $\frac{1}{2}$ - $\frac{3}{4}$  (- $\frac{1}{2}$ ) longitudinis, petala 5-11 mm. superantia. Petalorum lamina obovato-oblonga v. plane oblonga apice truncato-rotundata v. plane rotundata, 10-16 mm. longa; calcar e basi subangusta conico-subulatum, apice nectarifero vix capitatum rectum v. leviter incurvum, 15-20 mm. longum,  $\frac{1}{2}$ - $\frac{3}{4}$  laminae longitudine, sub apice 0.5-0.8 mm. crassitudine. Stamina numerosa valde inaequalia, longiora petalorum lamina 2-4 mm. breviora, filamenta o basi modice dilatata in apicem subfiliformem gradatim attenuata, longiora 7-11 mm. longa; antherae elliptico-oblongae 1.5-2 mm. longae apice rotundato muticae. Parastemones ovato-lanceolati v. lineares acuti undulati 7-9 mm. longi, ovaria superantes. Pistilla 5 erecta 8.5-10 mm. longa, staminibus aequilonga v. ea paullo superantia; ovaria 4-5 mm. longa anguste ovoideo-oblonga glanduloso-hirta; styli filiformes subrecti infra hirta ovario subaequilongi v. subduplo longiores.

Folliculi 4-5, subparalleli, subcylindrici, apicem versus modice attenuati, subobliqui, nervoso-reticulati, glanduloso-pubescentes, 12-15 mm. longi.

**VIII. *Aquilegia nivalis* Falcomer** (*A. nivalis* Falc. in herbario Kewensi de sententia Bakeri),

caule 3-30 cm. altitudine 1-v. rarius 2-floro, foliis basilaribus plerisque biternatis, foliolis margine sese obtegentibus 1-16 mm. longis, medio deltoidico v. reniformi basi obtuso v. subcordato fere ad medium trilobo, lobis lobulatis v. crenatis, crenis ovatis et rotundato-subquadratis, foliis caulinis paucis v. nullis vagina conspicua; sepalis stellatim patentibus 12-24-40 mm. longis late ovatis v. oblongis apice obtusis v. subacutis, petalis apice truncatis sinuatis retusis emarginatis, calcare uncinato v. recto conico v. cylindrico

v. *saccato*, staminibus saepius lamina brevioribus, carpellis hirtis, folliculis circiter 5 fere 1.5 cm. longis.

*var. α. paradoxa* P. B.,

saepe caespitosa, caule florifero 4–16 (–24) cm. altitudine, sepalis (12–) 20–25 mm. longis, calcare aut uncinato aut recto aut incurvo et tenni v. crassiuscule cylindrico. Himalaya occidentalis, Gilgit. Lecta in Gilgit (*Giles sub nominibus A. glaucae var. nivalis et A. vulgaris var. pubiflorae*); Kashmir (*herb. Falc! H. Sah! Winter-bottom!*); Tibetia occidentalis (*H. E. I. O. No. 58!*); Kunáwar (*Scz!*).

*var. β. saccocentra* P. B.,

caule florifero 20–30 cm. altitudine, sepalis 35–40 mm. longis, calcare saccato medio 3–4 mm. crassitudine. In vallo fluminis Chenab alt. 11000 ped. (*E.!*)

### Descriptio subspeciei.

Rhizoma fusiforme v. irregulariter cylindricum, descendens v. horizontale, subgracile v. percrassum, atro-brunneum, saepe pluriceps, collo vaginis foliorum delapsorum denso vestitum, caules 1–3 edens.

Caulis erectus v. ascendens, simplex v. subsimplex saepissime uniflorus interdum biflorus, nudus v. folium nuum alterumve edens, 3–30 cm. altitudine, prope basim 1–2 mm. crassitudine infra aut denso glanduloso-hirtus aut pubescens aut glaberrimus, sub flore semper denso glanduloso-hirtus.

Folia basilaria longissima v. partim longo petiolata; petiolus basi in vaginam membranaceam brunneam 1–2 cm. longam convergentim plurinerviam dilatatus supra basim leviter canalicellatus striatus (1–) 2–8 cm. longus, 0.5–1.3 mm. crassitudine, glaber v. hirsutus; lamina biternata v. folii unius alteriusve ternata; petioluli primarii striati glabri v. plus minus pilosi, terminalia 2–20 mm. longus; foliola marginibus seso obtusis tennia 3–16 mm. longa supra viridia infra pallidiora glabra v. vix pilosula, medium reniforme v. deltoidum v. semiorbicolare basi lata obtusum v. subcordatum rarius manifesto cuneatum circiter ad medium regulariter v. subirregulariter trilobum latitudine  $\frac{1}{3}$ – $\frac{2}{3}$  longitudinis, lobo medio obovato plus minus cuneato raro subintegerrimo (in foliis paucis tantum) saepissime trilobulato, lobis lateralibus oblique obovatis v. lato irregulariterque obtriangularibus saepius bilobulatis, lobulis integerrimis v. plus minus crenatis; foliola lateralia oblique reniformia latitudine  $\frac{1}{3}$ – $\frac{2}{3}$  longitudinis, basi subcuneata v. obscure cordata, plus minus profunde (interdum ad basim usque) irregulariter biloba, lobo interno subregulariter trilobulato v. tricenato, externo bilobulato, lobulis crenatis v. subintegerrimis, crenis foliolorum omnium breviter ovatis v. mediis rotundato-subquadratis plus minus obtusis v. rotundatis.

Folium caulinum infimum, aut unicum, (ubi adest,) longe v. longissime petiolatum minusculum v. parvum, foliis basilaribus interdum omnino conforme, saepius flori approximatum, petiolo basi in vaginam conspicuam lanceolatam dilatato 1–2.5 cm. longo, lamina saepissime ternata, foliola nunc tripartis scilicet et foliolis foliis bas. subsimilibus, nunc bi- v. trifidis laciniis lanceolatis nunc lanceolatis integerrimis; folium caulinum summum (v. unicum) saepe lineari-lanceolatum 8–12 mm. longum petiolo ad vaginam conspicuam reducto.



*Flos maiusculus magnusve v. mediocris plus minus nutans.*

*Sepala* stellatim patentia, late ovata v. ovato-oblonga, basi in unguem brevem constricta, apice obtusa v. acutiuscula interdum brevissime acuminata, (12-) 20-40 mm. longa, latitudine ( $\frac{1}{2}$ -)  $\frac{1}{3}$ - $\frac{1}{2}$  longitudinis, petala 6-12-22 mm. superantia, caerulea, dorso puberula v. glabra. Petalorum lamina obovato-cuneata apice truncata plus-minusve sinuata v. retusa v. emarginata 7-12 mm. longa purpurea v. violacea; calcaria aut e basi brevi ample conica in apicem tenuem uncinatim incurvum  $\frac{1}{2}$ - $\frac{3}{4}$ . laminae longitudine attenuata, aut a basi conoidea tenuiter cylindrica incurva v. subrecta aut saepius crassiuscule conica leviterque incurva laminae subaequilonga, aut tenuiter conica v. foro cylindrica lamina paullo longiora, aut saccata laminae subaequilonga v. paullo breviora, apice aut conspicue capitata aut obtusissima. Stamina longitudine inaequalia, petalorum lamina paullo breviora raro eorum limbum 1 mm. superantia; filamenta o basi paullum dilatata sensim in apicem attenuata, longiora 6-8 mm. longa; antherae elliptico-oblongae, exteriores saepius maiores, apice muticae, fere 1 mm. longae, flavae v. fusco-virescentes. Parastemonae lineares v. lanceolati plus minus undulati apice acuto apiculati 5-7 mm. longi, filamentis longioribus breviores, ovaria superantes, unus alterve saepe anthera parva instructus. Pistilla 5, staminibus breviora v. ea 5 mm. superantia, 9-14 mm. longa; ovaria subcylindrica 4-5 mm. longa dense glanduloso-hirta, in stylum subulatum ad altitudinem variam hirtum ovarii  $\frac{1}{2}$ - $\frac{3}{4}$  longitudine apice ad ultimum plus minus uncinatim recurvum subabrupte attenuata.

Folliculi 5 (v. plures ?) suberecti, e basi ovoidea in apicem oblique truncatum paullum attenuati, conspicuo transversim reticulato-nervosi, sine stylo circiter 1.5 cm. longi, hirti, stylo filiformi (fere 5 mm. longo) rostrati.

Semina obovoidea, laevia, nigra, (subopaca), circiter 1.5 mm. longa.

**IX. *Aquilegia glandulosa* Fisch.** (*Aquilegia glandulosa* Fischer, Zimmeter No. 10; *A. jucunda* Fischer; *A. Gebleri* Besser; *A. transsylvanica* Schur, Zimmeter No. 5; *A. Fussii* Zimmeter; *A. sulphurea* Zimmeter No. 9, *A. aurea* Janka. Icones: Delessert Icones vol. I tab. 48 ?; Sweet, Br. Fl. Gard. vol. I tab. 55; Edwards' bot. reg. vol. X, tab. 19; Flore des Serres, vol. V, 535),

caule 12-40 cm. altitudine 1-5-floro, foliis basilaribus biternatis, foliolis margine sese obtegentibus rarius subdistantibus, medio late triangulari v. reniformi rarius rhombico v. obovato-cuneatoq. trilobo latitudine saepissime  $\frac{1}{2}$ - $\frac{3}{4}$  longitudinis, crenis mediis rotundato-subquadratis v. breviter oblongis, folio caulino infimo saepissime brevissimo petiolato subtrifoliolato, floribus magnis v. mediocribus, sepalis stellatim patentibus late ovatis v. ellipticis 16-45 mm. longis, petalorum lamina apice rotundata raro obtusa, calcare uncinato  $\frac{1}{2}$ - $\frac{1}{3}$  laminae longitudine, staminibus lamina 2-11 mm. brevioribus, carpellis (5-) 6-12 glanduloso-hirtis, folliculis 2-3 cm. longis.

var. *a. jucunda* Fischer ex parte (*A. glandulosa* var. *discolor* DC.),

caule plus minus glanduloso-pubescenti, foliolis saepissime margine sese obtegentibus terminali reniformi basi saepissime sub-

cordato v. subtruncato, pedunculis plus minus glandulosis, floribus discoloribus lamina alba v. ochroleuca calcare  $\frac{3}{4}$ — $\frac{1}{2}$  laminae longitudine. Sibiria.

**var.  $\beta$ . vera**", (A. glandulosa Fisch., Zimmerer. No. 10),

caule foliisque uti in  $\alpha$ , floribus concoloribus azureis v. caeruleis, calcare  $\frac{1}{2}$ — $\frac{3}{4}$  laminae longitudine. Variat floribus magnis v. medio-ribus.

subvar.  $\alpha\alpha$ . lamina petalorum elliptico-oblonga apice obtusa (=A. glandulosa typica Fischeri).—Sibiria.

subvar.  $\beta\beta$ . lamina petalorum oblongo-obovata apice rotundata v. rotundato-truncata (=A. iucunda Fischer ex parte).—Sibiria, Transsilvania.

**var.  $\gamma$ . sulphurea**" Zimmerer, (A. aurea Janka, Zimmerer No. 9),

foliolis sese paullum obtegentibus inciso-crenatis, terminali rhombeo basim versus cuneato saepius paullo longiore quam latiore, floribus magnis concoloribus sulphureis v. aurois, pedunculis glabris, calcare fere  $\frac{3}{4}$  laminae longitudine.—Macedonia.

**var.  $\delta$  transsylvanica**" Schur, (A. transsylvanica Schur, Zimmerer No. 5; A. Fussii Zimmerer),

foliolis sese attingentibus v. vix distantibus, terminali lato rhombeo v. subreniformi, pedunculis puberulis v. glabris, floribus magnis concoloribus violaceo-caeruleis, calcare  $\frac{1}{2}$ — $\frac{3}{4}$  laminae longitudine.—Transsilvania.

**var.  $\epsilon$ . Gebleri**" Besser (?),

foliolis sese attingentibus vix se obtegentibus, terminali subrhombeo versus basim obtusam lato cuneato, pedunculis plus minus glanduloso-pubescentibus, floribus concoloribus caeruleis.—Sibiria (Gebler!).

### Descriptio subspeciesi.

**Rhizoma** Rasiforme descendens collo foliorum reliquiis obtectum.

**Caulis** erectus simplex v. superne modico ramosus strictus v. vix flexuosus subteres leviter sulcatus, florifer 12–40 cm. altitudine, prope basin 1–4 mm. crassitudine, aut raro totus glaber aut saepius parte inferiore glabrescente sub flore pubescens v. glanduloso-hirtus aut basim versus hirtulus apiceque glanduloso-subtomentosus, subnudus v. parco foliosus.

**Folia** basilaria longissime petiolata, caule manifesto breviora, 10–30 cm. longa; petiolus basi in vaginam membranaceam lanceolatam v. ovata 1–2 cm. longam convergentem plurinerviam brunneam dilatatus, subterce, supra canaliculatus, 7–20 cm. longus, 1–3 mm. crassitudine, glaber v. puberulus v. glanduloso-hirtulus; lamina biternata; petioluli primarii supra canaliculati, puberuli v. subglabri, terminalis 1–4 cm. longus, laterales  $\frac{3}{4}$ — $\frac{1}{2}$  terminalis longitudine; foliola membranacea tenuiter palmatinervia margine sese obtegentia v. rarius subdistantia, supra viridia infra

pallidiora, aut utrinque glabra aut supra glabra et infra ad nervos praecipue et prope basim pilosula; terminale sessile v. breviter petiolulatum, rarius subrhombicum v. obovato-cuneatum saepissime late obtriangulare v. reniforme, aut basi obtusa late cuneatum aut obscure cordatum, vix ad tertiam partem v. ad medium usque regulariter v. irregulariter trilobum, 1-3 (-4) cm. longum latitudine  $\frac{1}{2}$ - $\frac{3}{4}$  raro  $\frac{1}{2}$  longitudinis, lobo medio obovato-cuneato v. breviter lineari-oblongo latitudine  $\frac{1}{2}$ - $\frac{3}{4}$  longitudinis apice crenis tribus regulariter v. saepius irregulariter inciso, lobis lateralibus semiovatis v. saepius transverse oblongis obovatisve bilobulatis lobulis inciso-crenatis; foliola lateralia sessilia v. subsessilia asymmetrice reniformia ad medium v. fere ad basim bi- v. triloba, basi latissime cuneata v. subsemicordata, lobis lobulatis et inciso-crenatis, crenis foliorum omnium mediis rotundato-subquadratis v. transverse longitudinaliterve lineari-oblongis lateralibus breviter oblongo-ovatis, apice obtusis v. rotundatis saepe leviter rotatis; petioli secundarii, ubi adsunt, haud raro magis pilosi quam primarii, terminalis subnullus v. 8 mm. longus, laterales saepe nulli semper terminali breviores.

Folium caulinum infimum interdum longo petiolatum basilaribus subconforme, saepius folia caulina inferiora, ubi adsunt, brevissimo petiolata petiolo ad vaginam reducto, lamina subtrifoliolata, foliolis aut trisectis aut integris segmentis foliolisve lineari-lanceolatis; folia summa bracteiformia sessilia trisecta v. saepe lanceolato-linearia raro ovato-lanceolata 5-9 mm. longa, in pedunculis lateralibus praesertim haud raro duo plus minus approximata v. fere opposita.

Flores solitarii v. 2-3 (-5) in racemum subcorymbosum dispositi, nutantes v. erecti, mediocres v. magni. Sepala stellatim patentia, nervis tribus valde ramosis percurta late ovata v. elliptica, basi in unguem porbrevem constricta, apice acuta v. subobtusa saepe brevissime acuminata, 16-20-45 mm. longa latitudine  $\frac{1}{2}$ - $\frac{3}{4}$  longitudinis, azurea v. dilute caerulea raro aurea v. sulphurea v. albida, dorso glabra v. puberula, apiculo plerumque albicante v. viridi, petala 6-22 mm. superantia. Petala aut concoloria caerulea purpurea albida aenea sulphurea aut discoloria calcare azureo v. dilute caerulea ac lamina alba v. ochroleuca, dorso glabra v. puberula; lamina aut obovato-oblonga apice rotundata raro rotundato-truncata aut elliptico-oblonga in apicem obtusum attenuata, 10-27 mm. longa; calcar late conoideum apice capitato uncinatum incurvum, laminae rarius subaequilongum saepius  $\frac{1}{2}$ - $\frac{3}{4}$  rarius  $\frac{1}{2}$  laminae longitudine. Stamina numerosa longitudine inaequalia lamina 2-6 raro 11 millimetris breviora glabra; filamenta longiora 8-11 mm. longa, a basi vix dilatata gradatim attenuata; antherae oblongae 2.5-3.5 mm. longae muticae flavae. Paraestemones lineari-lanceolati v. lineares, apice acuto apiculati, undulati 7-9 mm. longi, filamenta longiora aequantes v. his manifesto breviores, ovaria distichis superantes interdum apicem styli attingentes, apice haud raro antheris parvis globosis instructi. Pistilla 6-12, erecta, supra stamina vix v. 1-3 mm. prominentia raro his breviora, 8-11 mm. longa; ovaria subcylindrica, dense glanduloso-hirta; stylus filiformis apice subrectus v. circinnatim recurvus, ovario saepissime paullo brevior.

Folliculi 6-12 patuli, a basi ovoidei sensim attenuati, apice oblique in stylum persistentem attenuati, sine stylo 2-3 cm. longi, hirti saepe glandulosi.

Semina numerosa, cuneato-obovoides, ventre carinata, saepe 3- v. 5-costata, nigra, nitida.

**X. *Aquilegia Moorcroftiana* Wall.** (*Aquilegia Moorcroftiana* Wall. Cat. 4713, Royle Ill. 55; *Aquilegia glauca* Lindl. (1840); *A. kumaonensis* Camb. (1844); *A. fragrans* Bth., Baker ex parte; *Aquilegia*

vulgaris subsp. 4. alpina, subsp. 5. pyrenaica, Hook. f. et T. in F. B. I.; *Aquilegia vulgaris*, var. pyrenaica et grandiflora H. f. et T. in F. I. Icones: Jacq. Voy. Bot. tab. V; Bot. Mag. tab. 4493; Lindl. Bot. Reg. XXVI tab. 46; Maund's Bot. IV. tab. 151.),

caule 10–80 cm. altitudine conspicue folioso raro subnudo ramoso rarius simpliciori, foliis basilaribus biternatis v. triternatis, foliolis parvulis v. magnis sese obtegentibus v. subdistantibus, terminali obovato subrotundo reniformi trilobo v. trisecto, foliis caulinis inferioribus ternatis v. biternatis, floribus 3–9 raro solitariis medio-cribus v. magnis concoloribus v. discoloribus colore vario, sepalis ovatis v. oblongis 14–45 mm. longis, petalorum lamina saepissime truncata, calcare saepissime subulato recto v. modice incurvo rarius uncinato longitudine comparata vario, staminibus limbum attingentibus v. superantibus, carpellis 5–9 glanduloso-hirtis, folliculis 18–25 mm. longis. Floret ab Iunio ad Septembrem.

Area geographica—Paropamisus, Himalaya alpina et subalpina occidentalis, Afghanistan orientalis, Belutchia.

var. a. *fragrans* Bth. (Baker ex parte),

rhizomate crasso, caule 60–90 cm. altitudine, valde folioso, foliis basilaribus biternatis v. saepius plus minus triternatis, petiolulis gracillimis, foliolis tenuibus infra plus minus glaucis, terminali fol. bas. subreniformi profundo tripartito partitionibus 2–3-fidis laciniis lineari-oblongis plus minus inciso-crenatis crenis obtusis v. rotundatis, floribus 2–5 albidis v. pallide purpureis, sepalis ovatis v. ovato-lanceolatis apice obtusiusculis 19–25 mm. longis, calcaribus lamina subduplo brevioribus v. eam subaequantibus apicem versus gracillimis, aut uncinatim incurvis aut rarius subrectis, folliculis 5–7, 16–18 mm. longis.

Lecta in Kashmir (H. Falc. !); Gilgit ad Kala Pani 10–11000' (G. I.).

var. β. *Winterbottomiana* P. B.,

caule 25–40 cm. altitudine, foliis basilaribus caulisque inferioribus aut triternatis aut biternatis atque foliolis trisectis, laciniis foliorum intermediarum oblongo-lanceolatis, petiolulis plus minus glanduloso-pubescentibus, segmentis foliorum flor. inferiorum lineari-lanceolatis latitudine  $\frac{3}{4}$ – $\frac{1}{2}$  longitudinis, sepalis fere 2.5 cm. longis, petalorum lamina 10–12 mm. longa apice truncata, calcare subhamato circiter 15 mm. longo, carpellis 5–6.

In iugo inter Kashmiria et Daráwar (*Winterbottom* I.).

var. γ. *suaveolens* (= *A. kunoensis* var. β *suaveolens* Camb.; = *A. fragrans* (Bth.) Baker ex parte,

caule 30–70 cm. altitudine folioso, foliis caulinis saepissime con-

spiculis, basilaribus biternatis rarius subtrternatis, foliolis membranaceis infra saepissime plus minus glaucis terminali fol. bas. reniformi v. semiorbiculari v. subrotundo fere ad basim usque tripartito v. ad tertiam partem triflobo segmentis 2 v. 3 lobis v. crenatis lobis crenisque obtusis breviter lineari-oblongis, foliis caulinis superioribus valde variis, floribus saepissime 5–12, sepalis albidis v. stramineis, petalis saepe violaceis v. purpureis sed etiam albidis 25–50 mm. longis acutis v. acuminatis, calcaribus laminam 1–10 mm. superantibus rectis v. leviter incurvis, carpellis 6–9, folliculis sine stylo 20–25 mm. longis. Vidi allatam e Gilgit (*T! Biddulph!*), Kashmiria (*Sedgewick! W. S. A. ! Levinge!*), Drankar 17–19000' (*Scz.!*), Lahul (*H. Calc. ! J! H!*), Pangi (*Scz.!*), valle fl. Chenab superiore (*B. P.!*).

**var.  $\delta$ . glauca** Lindl.,

foliis basilaribus biternatis glaucis, laciniis fol. intermediarum obovato-cuneatis v. breviter oblongis, segmentis fol. flor. inf. obovato-cuneatis v. late lanceolatis, sepalis 25–30 mm. longis stramineis v. albo-purpureis, petalorum stramineorum calcaribus rectis conicis apice capitatis lamina truncata 2–4 mm. brevioribus, carpellis 6 (v. pluribus?), folliculis circiter 2 cm. longis.

Kashmiria (Forma rara et vix a varietate  $\epsilon$  distinguenda).

**var.  $\epsilon$ . kumaorensis** Camb. (*A. kumaorensis Camb. var.  $\epsilon$  = A. Moorcroftiana Wall. Cat. No. 4713 a Royleo in Ill. male descripta*),

foliis plus minus glaucis, basilaribus aut triternatis, aut biternatis et foliolis fere ad basim usque tripartitis, petiolis petiolulisque glabris v. parce hirtulis, foliis flor. inf. trifoliolatis v. trisectis foliolis subrhombiis v. late lanceolatis, sepalis 14–23 (saepissime 17–21) mm. longis stramineis v. saepius violaceis, petalorum violaceorum v. plus minus ochroleucorum lamina 9–17 mm. longa, calcaris recto v. leviter incurvo 11–21 saepissime 14–18 mm. longo lamina saepissime 3–10 mm. longiore rarissime vix brevioris, carpellis 5, rarius 6, folliculis 15–20 mm. longis. Gilgit (Giles sub nomine *A. fragrantis!* et *A. Moorcroftianae Wall?!* et *A. viridiflorae!*); Baltistan, prope Kapala (*Hunter-Weston!*), Ladakh (*Moorcroft!*), in Kurang prope Rumbog (*Scz.!*); Kunawar (sec. *Jacqem.*); Afghanistan, in valle Kurram ('*A. vulgaris*, var. *Moorcroftiana Wall. Aitch.*), ad Kairwas 12000 ped. ('*Aquilegia vulgaris*, var. *fragrans Benth.*', *Aitch.*), in rupestribus montium Safed Koh 10–12000 ped. ('*A. pubiflora Wall.*, var. *humilior*, *Aitch. et Hemsl.*, *A. pubiflora Boiss. Fl. Or. Suppl. nec Wall.*).

**var.  $\zeta$ . Wallichiana** (A. Wallichiana in *herb. Calc.*), uti var.  $\epsilon$ , sed foliolis viridibus nec glaucis. Kumaon (*Vicary!*).

**var.  $\eta$ . *afghanica* P. B.,**

caule 10–30 cm. altitudine 1–4 (–6)-floro usque a basi villosopubescenti plus minus glanduloso, petiolo petiolulisque plus minus villosis, foliis basilaribus biternatis, foliolulis textura firmiore saepissime manifesto petiolulatis glabris v. puberulis nec glaucis intermedio plus minus profunde trilobo lobis parce crenatis crenis rotundatis rarius breviter oblongis, foliis caulinis variis interdum subconspicuis, sepalis 18–28 mm. longis, lamina petalorum truncata, calcare lamina longiore subulato recto v. subincurvo, staminibus petala 1–4 mm. superantibus, carpellis 5. Floret ab Iunio ad Aug.

Afghanistan orientalis; in valle Kurram—in monte Sikarām 10–14000 ped. (*Aquilegia* nov. sp. *Aitch.*). Calcaribus exceptis, valde similis *Aquilegiae* Bertolonii.

**var.  $\theta$ . *subaphylla* P. B.,**

caule 25–35 cm. altitudine simplici v. superne parce ramoso a basi usque, uti petioli petioluli pedunculi, glanduloso-hirto, foliorum basilarium biternatorum lamina 2.5–5 cm. longa, foliolis parvulis breviter petiolulatis textura subcarnosa glabris v. puberulis terminali reniformi trilobo 12–18 mm. lato, lobis parce crenatis, foliis caulinis inferioribus 1 v. 2 ternatis v. subbiternatis, sepalis circiter 2 cm. longis, petalorum lamina rotundato-truncata, calcare subulato recto lamina longiore, staminibus limbum pot. 2–5 mm. superantibus.

In valle Spiti, versus iugum Ringun 13–14000 ped. (*Scz.*!), prope Thissigaong 15–16000 ped. (*Scz.*!).

**Descriptio subspeciei.**

Rhizoma descendens v. horizontale crasse fusiforme v. cylindricum, interdum pluriceps, nigricans, collo vaginis foliorum fusorum vestitum, caules 1–3 edens.

Caulis erectus v. ascendens rarissime simplex saepissime superne plus minus ramosus, teres, sulcatus, altitudine 10–80 cm., basi 1.5–4 mm. crassitudine, conspicuus foliosus raro subnudus, puberulus v. glabrescens aut a basi villosopubescentia v. glanduloso-hirtus.

Folia basilaria longissime petiolata caule florifero breviora 5–12–35 cm. longa; petiolus basi in vaginam lanceolatam membranaceam 15–30 mm. longam convergentim nervosam dilatatus, canaliculatus 3–20 cm. longus crassitudine 1–2 mm., hirtus v. puberulus; lamina biternata raro ternata, interdum triternata; petioluli primarii tennes puberuli v. pubescentes v. glanduloso-hirti, terminalis 2–8 cm. longus 0.8–1.5 mm. crassitudine, laterales  $\frac{1}{2}$ – $\frac{3}{4}$  terminalis longitudine; foliola margine approximate v. sese obtegentia, membranacea raro subcarnosa, supra glauca v. viridia infra pallidiora saepius glauca, glabra v. puberula v. densiuscule pubescentia, tenner nervosa; terminale circumscriptione late obovatum v. obovato-cuneatum v. suborbiculare v. semiorbiculare v. reniforme, longe v. breviter petiolulatum, basi late cuneata obtusum v. truncatum v. subcordatum, 9–50 mm. longum latitudine  $\frac{1}{2}$ – $\frac{3}{4}$  longitudinis, fere ad medium trilobum v. ad basin usque trisectum v. rarius tri-

foliolatum segmentis vix v. haud margine imbricatis, segmento lobove medio cuneato-obovato apice crenis grossis v. lobulis tribus inciso, segmentis lateralibus aut late oblongis aut oblique cuneato-obovatis inaequaliter bilobulatis lobulis plus minus grosso crenatis v. integerrimis; foliola lateralia aut trapezoidea aut terminali subconformia, crenis brevissime lineari-oblongis v. oblongo-ovatis apice obtusis v. rotundatis; petioluli ultimi glabri v. villosi-pubescentes, terminalis 2–35 mm. longus, laterales multo breviores v. nulli.

Folia caulina intermedia, uno alterove saepe longe petiolato excepto, breviter brevissimeve petiolata, inferiora saepe biternata superiora haud raro ternata, foliolis lateralibus fol. bitern. sessilibus v. vix petiolulatis folia summa subsessilia reliquis multo minora trifoliolata v. trisecta ad ultimum saepe integra bracteiformia anguste lanceolata, segmentis integerrimis v. incisissimis saepe lanceolatis, interdum ovatis acutis v. acuminatis, 1–3 cm. longis.

Inflorescentia rarissime subuniflora, saepissime 3–9 flora corymboso-paniculata, ramis valde elongatis. Pedunculi graciles teretes dense pubescentes saepe viscosi. Flores mediocres v. magni subnantes, concolores v. discolores. Sepala ovata v. ovato-oblonga, nervis tribus ramosissimis percurta, apice acuta v. obtusa, cuneato-attenuata v. acuminata, basi saepe abrupto constricta, 14–45 mm. longa, latitudine circiter  $\frac{1}{2}$  longitudinis dorso puberula violacea v. purpurea v. straminea v. albidia, petala 4–15 mm. superantia. Petala glabra v. calcaria puberula, v. purpurea v. violacea v. straminea v. ochroleuca v. albidia; lamina obovata, apice truncata rarius truncato-rotundata, 11–15 mm. longa; calcar o basi conoidea sensim in partem apicalem tonitruo cylindricum v. subulatum attenuatum, raro uncinatum incurvum saepius rectum aut a basi aut apicem versus incurvum, laminae subaequale v. ca. sesquialongum raro duplo longius v. duplo brevius, apice manifesto v. vix capitatum.

Stamina longitudine inaequalia, numerosa, longiora petalorum limbum subaequantia v. paullo superantia, glabra, filamenta angusta o basi paulum dilatata sensim attenuata; anthera oblongae v. ellipticae muticae circiter 2 mm. longae. Parastomones ovato-lanceolati vix v. distincte undulati acuti ovaria superantes.

Pistilla 5–9, stamina vix v. manifesto superantia, 9–14 mm. longa; ovaria cylindrica dense hirta plus minus glanduloso-pilosa, in stylum subulatum parte inferiore hirtum apice rectum v. recurvum aequilongum v. sesquialongum attenuata.

Folliculi 5–9 patuli subcoriacei subcylindrici, o basi ovoidei sensim attenuati, apice oblique rotundato-truncati, nervis obliquis crebris prominentibus plus minus anastomosantibus reticulati, sine stylo 18–24 mm. longi, plus minus hirti, stylis filiformibus 6–10 mm. longis apice saepe circinnatim recurvis rostrati.

Semina numerosa cuneato-obovoidea ventre carinata, interdum subcostata, nigra, nitida v. subopaca, vix punctulata, 2–2.5 mm. longa.

### Tabella ad varietates *Aquilegiae Moorcroftianae* determinandas.

I. Caulis plus minusve conspicue foliosus et saepissime (30–) 40–60 cm. altitudine, basin versus glabrescens v. parco hirtulus.

A. Calcar petalorum lamina brevius v. eam vix aequans.

B. Sepala 19–25 mm. longa; calcaria uncinata v. plus minus manifesto incurva; folia basilaria saepe triternata.]

A. *fragrans*.\*

23. Sepala 25-30 mm. longa; calcaria recta v. vix incurva; folia basilaria biternata. (Flores albidii v. straminei.)

**A. glauca**".

- B. Calcar lamina paullo v. multo longius.

- A. Laciniae foliorum caulinarum mediorum oblongo-lanceolatae; segmenta foliorum floralium inferiorum lanceolata, latitudine  $\frac{1}{2}$ - $\frac{2}{3}$  longitudinis; calcar gracillimum lamina vix longius subhamatum; (sepala fere 2.5 cm. longa; stirps aspectum A. thalictrifoliae praebens).

**A. Winterbottomiana**".

23. Laciniae foliorum mediorum lineari-oblongae v. obtuse ovatae v. rotundato-subquadratae. Calcar rectum v. leviter incurvum, gracile v. crassiusculum.

- a. Sepala 25-50 mm. longa. Carpella 6-9.

**A. suaveolens**".

- b. Sepala 14-23 mm. longa. Carpella 5-6.

- a. Foliola infra plus minus glauca.

**A. kunaorensis**".

- b. Foliola utrinque viridia, infra pallidiora.

**A. Wallichiana**".

- II. Caulis (saepeissime) subnudus v. foliis uno alterove vix conspicuo instructus, 10-40 cm. altitudine, a basi usque villosa-pubescentia aut, uti petioli petiolulique, glanduloso-hirtus.

- A. Caulis usque a basi, uti petioli petiolulique, villosa-pubescentia, 10-30 cm. altitudine.

**A. afghanica**".

- B. Caulis usque a basi, uti petioli petiolulique, glanduloso-hirtus, 30-40 cm. altitudine.

**A. subaphylla**".

- XI. *Aquilegia leptoceras* Fisch. et Meyer (1837). (*Aquilegia leptoceras* Fisch. et Mey. *Linnaea* XII, Litt. 153; *Bot. Reg.* X, 64; *Flora des Serres* III, 296),

caule humili (circiter 20 cm. alt.), foliis aut biternatis, aut ternatis, atque foliolis tripartitis, glabris, terminali obovato cuneato apice ad tertiam quartamve partem trilobo latitudine circiter  $\frac{2}{3}$  longitudinis, floribus compluribus, discoloribus, sepalis stellatim patentibus ovato-oblongis 18-22 mm. longis, petalorum lamina apice rotundato-truncata v. retusa, calcaro conico recto v. subincurvo, staminibus pet. limbum superantibus, carpellis 5.

**Descriptio subspeciei.**

Caulis humilis (circiter 20 cm.) teres pluriflorus aut basin versus glaber aut, uti petioli petiolulique, totus pubescens. Folia longiuscule petiolata, partim biternata, partim ternata atque foliolis profunde tripartitis; petioli foliorum maiorum 4-8 cm. longi basi vaginantes; petioluli primarii teretes terminalis 1-2 cm. longus laterales  $\frac{2}{3}$ - $\frac{3}{4}$  terminalis longitudine; foliola membranacea, viridia infra pallidiora, glabra, foliorum biternato um sessilia; terminale obovatum basi cuneatum apice ad



quantam v. tertiam partem trilobum 15–20 mm. longum latitudine circiter  $\frac{1}{2}$  longitudinis; lateralia oblique obtriangularia plus minus profunde biloba; lobis foliolorum omnium parce inciso-crenatis, crenis obtusis. Folia caulina inferiora 1–3 brevius petiolata, subbitermata; intermedia sessilia trifoliolata v. trisecta plus minus fissa; petiolaria lanceolata bracteiformia.

Flores mediocres. Sepala stellatim patentia, ovato-oblonga, basi breviter contracta, apice obscure producto subobtusata, 18–22 mm. longa, latitudine circiter  $\frac{1}{2}$  longitudinis, laete lilacino-caerulea, apicem versus albescentia, vero apice viridescientia. Petalorum lamina obovato-cuneata, apice rotundato-truncata v. retusa, 10–12 mm. longa, albida apice ochroleuca; calcar graciliter conicum, rectum v. modice incurvum, apice subcapitatum, fere  $\frac{1}{2}$  laminae longitudine, laete caeruleum. Stamina petala 2–5 mm. superantia; antherae elliptico-oblongae muticae flavae. Pistilla 5, stamina paullo superantia; ovaria pubescentia (an unquam glabra?); styli subrecti.

Folliculi recti v. apice divergentes. sine stylo 20–22 mm. longi, (glabrescentes?).

Dauria, Sibiria transbaicalensis.

Valde affinis *A. Moorcroftianae* var. *kunaorensi*.

**XII. *Aquilegia lactiflora* Kar. Kir.** (*Aquilegia lactiflora*, Karelin et Kirilow in Mosc. Bull. 1841, vol. XIV, p. 374),

caule subprocero folioso parce ramoso, foliis bitermatis, foliolis sessilibus v. breviter petiolulatis maiusculis viridibus ad medium fere tripartitis segmentis inciso-crenatis crenis rotundatis v. oblongis, inflorescentia fere triflora, sepalis oblongo-lanceolatis 15–20 mm. longis lacteis petalorum limbo fere duplo longioribus, calcaribus gracilibus rectis v. leviter incurvis laminae aequilongis v. ea manifesto longioribus apice nectarifero vix capitatis, staminibus petalorum laminam rotundatam subaequantibus, carpellis 5 villosis.

Area geographica—Montes Tarbagatai Asiae rossicae.

**XIII. *Aquilegia pubiflora* Wall.** (*Aquilegia pubiflora* Wall. Cat. 4714; Royle Ill. pag. 55.),

caule (15–) 40–70 cm. altitudine saepissime superne ramoso et folioso, foliis basilaribus saepius bitermatis, foliolis mediis subrhombis v. subreniformibus saepius ad medium trifidis latitudine  $\frac{1}{2}$ – $\frac{3}{4}$  longitudinis, foliis caulinis saepissime conspicuis, inflorescentia (1–) 2–5 (–10)-flora, floribus mediocribus, sepalis ovato-lanceolatis (12–) 20–28 mm. longis latitudine saepius  $\frac{1}{2}$  longitudinis, petalorum lamina apice rotundata raro rotundato-truncata, calcare uncinato rarius modice incurvo saepissime quam lamina brevior, staminibus laminam subaequantibus, carpellis 5–6 glanduloso-hirtis, folliculis fere 2 cm. longis.

Floret a Maio ad Iulium.

Area geographica—Himalaya occidentalis temperata (frequens) et subalpina (rara), Afghanistan orientalis.

**var.  $\alpha$ . *Cunninghami* P. B.,**

caule 25–40 cm. altitudine plus minus folioso paucifloro, sepalis acutis petala paullo superantibus, calcaribus incurvis neque uncinatis. Himalaya pentapotamica\* (*Cunningham*!).

**var.  $\beta$ . *Massuriensis* Royle,**

caule 40–80, raro 12–30 cm. altitudine plus minus ramoso (2–) 3–8 floro conspicue folioso, sepalis longe acuminatis petala multo superantibus, calcaribus brevibus.

*subvar.  $\alpha\alpha$*  caule 40–80 cm. alt. calcaro subcircinnatim incurvo. Afghanistan, in valle Kurrum (*Aitch*!), in monte Shendtoi (*Aitch*!); Kashmiria (*II. Sah.*!, *Sedgewick*!); Dalhousie (*herb. Dr.*!); Sirmor, in monte Chūr 9–10,000' (*herb. Dr.*!); Simla (*T. T.*!), in silva Mashobra (*G.*!); Jaunsar Bahar, in montibus Droban (*B.*!), ad Pakri (*B.*!); Baira (*B.*!), montes Trusa (*B.*!); Tihri-Garhwal: supra Bhowáni 13–11000' (*D.*!), in valle Gangis 6–7000' (*D.*!), ad Nag Tibba 8–9000' (*Gollan*!), Massuri (*Royle*! *K.*!); Kumaon; prope Naini Tal (*A. D.*!), in valle Nila 8–9000' (*D.*!).

*subvar.  $\beta\beta$* . caule 12–30 cm. altitudine, calcaro hamato rarius levius incurvo.—In montibus prov. Simla (*herb. Dr.*!).

**var.  $\gamma$ . *subnuda* P. B.,**

caule gracili 15–35 (–40) cm. altitudine simplici v. apice 2–3-floro vix folioso, sepalis longo acuminatis petala manifesto superantibus, calcaribus brevibus subcircinnatim incurvis. N. W. Him. (*Wall. Cat.* 4714!); ad Sorahan (*Scz.*!), Dalhousie 7000' (*Ulmer*!) Simla (*Scz.*!), Garhwal (*herb. Falc.*! *K.*!).

**Descriptio subspecies.**

Rhizoma horizontale v. verticale, subcylindricum v. subfusiforme, cortice nigra, collo cylindrico reliquiis vestitum et 3–15 mm. crassitudine, caules 1–3 edens.

Caulis erectus, superne ramosus raro simplex, teres, leviter sulcatus, fistulosus, florifer saepissime 40–70 cm. rarius 15 cm. altitudine, basi 1.5–3 mm. crassitudine, foliosus raro subnudus, subglaber v. plus minus hirtellus.

Folia basilaria longissime petiolata caule florifero saltem subduplo breviora 5–30 cm. longa; petiolus basi in vaginam lanceolatam membranaceam 10–30 mm. longam convergentim nervosam dilatatus, subtiles tenuiter sulcatus, basi supra leviter canaliculatus, 2.5–20 cm. longus, 1–2 mm. crassitudine; lamina biternata rarius triternata, raro folio uno alterove ternato atque foliolis trisectis; petioli primarii graciles subglabri v. prope insertionem petiolorum secundariorum praesertim villosopubescentes, terminalis 12–50 mm. longus 0.4–0.8 crassitudine, laterales  $\frac{1}{2}$ – $\frac{1}{3}$  terminalis longitudine; foliola tenuiter membranacea, viridia infra pallidiora, terminale longiuscule v. breviter petiolulatum v. subsessile circumscriptione subrhombum subisodiametricum 1–4.5 cm. longum latumque et basi late cuneatum, vel semiorbi-

culare v. subniforme basique subtruncatum, saepissime fere ad medium palmatim trilobum rarius ad duas partes v. fere ad basim usque tripartitum, lobo medio cuneato-obovato v. breviter oblongo, latitudine  $\frac{3}{4}$ – $\frac{1}{2}$  longitudinis, symmetrice v. asymmetrice lobato-crenato crenis lateralibus duabus saepius integerrimis terminali brevioribus, lobis lateralibus breviter linear-oblongis parco crenatis v. irregulariter inciso-crenatis crenis paucicrenulatis v. integerrimis; petiolulus secundarius medius cm. longus v. subnullus, laterales terminali manifesto breviores v. sessiles; foliola lateraliter trapezoides asymmetricae lateque cuneata, ad medium v. fere ad basim inaequaliter bipartita v. tripartita lobato-partitione externa inaequaliter crenato bilobata media triloba v. tricerona, lobis crenisve integerrimis v. paucicrenulatis, crenis apice obtusis v. rotundatis, ovatis v. breviter oblongis.

Folia caulina intermedia sparsa sursum gradatim minora et brevius petiolata, basilaribus subconformia sed foliola haud raro subsessilia et lobi saepe manifestius linear-oblongi; folia floralia inferiora brevissimo petiolata, petiolo ad vaginam linearem 3–7 (–16) mm. longam reducto, ternata v. subternata foliolis longo petiolulatis trisectis v. tripartitis, segmentis incisissimis laciniis sublinearibus crenato-serratis rarius lanceolatis; folia floralia superiora subsessilia trisecta, segmentis lateralibus integris lanceolatis, rarius trifidis, integerrimis v. parco serratis, terminali integro v. trifido, summa saepe bracteiformia lanceolata.

Inflorescentia raro uniflora saepissime 2–3 (–8)-flora, laxissima. Pedunculi graciles 2–10 cm. longi leviter sulcati v. teretes, apicem versus pilis patentissimis dense pubescentes interdum viscosi. Flores mediocres erecti v. nutantes purpurea v. lurida, concoloros. Sepala membranacea ovato-lanceolata longo acuminata rarissime cuneato-acutata, basi saepe constricta, apice semper obtusiusculo herbacea, 20–28 rarius 12–16 mm. longa, latitudine saepissime circiter  $\frac{1}{2}$ , rarius  $\frac{1}{3}$  v.  $\frac{1}{4}$  longitudinis, nervis 3 ramosis apicem versus convergentibus percursa, petala 6–14 mm. excoctia rarissime petala pauculo tantum superantia, dorso plus minus pubescentia. Petala dorso puberula; lamina oblongo-obovata apiceque rotundata rarius oblonga truncata 11–18 mm. longa; calcar o basi amplo conoidea subabrupto v. sensim in partem apicalem subcylindricam v. leviter conicam attenuatam, apice circinnatim v. uncinatim incurvum  $\frac{1}{2}$ – $\frac{1}{3}$  laminae longitudine rarius leviter incurvum, apice vix capitatum. Stamina 30–40, laminam petalorum vix superantia; filamenta inaequalia, longiora 7–9 mm. breviora 5–6 mm. longa, o basi medio dilatata in partem superiorem angustissime linearem angustata; antherae conformes, oblongae, 2–2.5 mm. longae. Parastemones oblongi, apice acuto apiculati, subundulati, 5–6 mm. longi, subsistentes. Pistilla 5–6, erecta v. subpatula, 10–13 mm. longa; ovaria cylindrica patentim pubescentia, in stylum gradatim v. subabrupte attenuata; styli subulati ovario vix v. multum longiores, apice ad ultimum recurvi.

Folliculi 5–6 chartacei, subcylindrici et apicem versus paullum attenuati, in stylum filiformem 5–6 mm. longum oblique attenuati, tenuiter sed conspicuo crebreque reticulato-nervosi, subglabri, sine stylo circiter 2 cm. longi, aut paralleli aut saepissime a medio recurvi et apice lato divergentes.

Semina numerosa, oblonga, sectione transversa subtriangularia dorso leviter curvata ventre carinata, testa nigra v. subbrunnea nitida laevi.

Folia et foliola *A. vulgaris* plerumque subsimilia, sed interdum omnino sunt

• *Aquilegia pyrenaica*.

**XIV. *Aquilegia Ottonis* Orph.** (*Aquilegia Ottonis*, *Orphanides* in Boiss. Diagn. ser. II. No. 1 pag. 14 et 15; *Aquilegia Amaliae* Held-

*reich* in Boiss. Diagn. ser. II. No. 1 pag. 11; *A. pyrenaica* = *A. Bertolonii* = *A. Magellensis* Porta et Rigo exsicc.; *A. nevadensis* Boiss. ?),

caule, uti petioli petiolulique, glanduloso-pubescenti, 35–70 cm. altitudine 1–6 floro folioso; foliis basilaribus biternatis; foliolis sessilibus v. saepius petiolulatis supra viridibus infra glaucis basi longe cuneatis, terminali ad medium usque v. ultra medium tripartito, partitione media crenis tribus, lateralibus crenis binis incis, crenis integris v. crenulatis; foliis caulinis inferioribus duobus v. tribus foliis basilaribus subconformibus v. brevius petiolatis, superioribus trifoliolatis v. trisectis segmentis lineari-lanceolatis, summis lanceolatis integris, floribus paullo minoribus quam in *Aquilegia vulgaris* typica (var. varia *Maly*), sepalis oblongis acutis pallide violaceis v. lacto caeruleis, petalorum lamina albida apice rotundata v. rotundato-truncata, calcaribus apice subincurvis laminae subaequilongis, staminibus limbum superantibus, carpellis parallelis v. apice divergentibus, 12–15 mm. longis seminibus granulatis.—Graecia, Italia meridionalis, (Sierra Nevada?).

**var. *a. typica*,**

foliolis in segmenta oblonga ultra medium incis, sepalis calcaribusque lacte caeruleis obtusiusculis, petalis apice rotundato-truncatis, (carpellis apice divergentibus).

**var. *β. Amaliae*'' Helder.,**

foliolis ad medium usque bi- v. trilobis, sepalis calcaribusque pallide violaceo-caeruleis acutis, petalis apice rotundatis, (carpellis parallelis).

**Tabella analytica ad subspecies *Aquilegiae vulgaris* Lin. determinandas.**

- I. *Alabastri* subcylindrici. Sepala in flore aperto erecto-patuli (oblongo-lanceolata. Flores bicolores. Calcaria saepissime uncinata).

***A. oxysepala*'' Trautv.**

- II. *Alabastri*, neglectis calcaribus, plus minus ovoides v. ellipsoidei. Sepala in flore patentia v. patentissima.

**A. Calcaria in flore aperto uncinatim incurva.**

**α. Calcaria laminae subaequilonga v. ea manifeste longiora.**

**a. Stamina longiora lamina 1 mm. breviora v. 1–10 mm. longiora.**

**α. Folliculi 18–25 mm. longi, a basi ovoides attenuati. Folia caulina infima haud raro foliis basilaribus subconformia, (foliola fol. bas. 10–50 mm. longa).**

**α. Crenae fol. bas. breviter lineari-oblongae, mediis rotundato-subquadratis. (Foliola tenuia, plus minus glauca; calcaria gracillima gradatim hamata; florus albi v. straminei v. pallido purpurei).**

***A. Moorcroftiana*'' Winterbottomiana''.**

- β. Crenae fol. bas. saepissime rotundatae v. obtusae. (Foliola viridia; calcaria crassiuscula saepe subabrupte uncinata; flores purpureo-caerulei v. violacei v. caeruleo-lilacini v. rufescenti-cinnamonei.)

**A. vulgaris' Lin.**

- β. Folliculi 12–15 mm. longi. Folium caulinum infimum saepissime foliis basilaribus dissimile. Foliola media fol. bas. 12–20 mm. longa.

**A. Bertolonii' Schott.**

- b. Stamina quam lamina 2–11 mm. breviora.  
 α. Crenae mediae fol. bas. rotundatae v. rotundato-subquadratae. Folia caulina saepius basilaribus dissimilia. Lamina petalorum saepius apice rotundata.  
 α. Pistilla 5. Folliculi 12–15 mm. longi subcylindri. (Sepala 24–30 mm. longa, apice acuta v. acuminata. Flores caerulei).

**A. Bertolonii' Schott.**

- β. Pistilla (5–) 6–12. Folliculi 20–30 mm. longi, e basi ovoides plus minus attenuati. (Sepala 16–45 mm. longa. Flores saepe discolors.)

**A. glandulosa' Fischer.**

- β. Crenae mediae fol. bas. breviter lineari-oblongi. Folia caulina inferiora basilaribus subconformibus, lacinis vero saepissime magis linearibus. (Sepala saepissime 32–45 raro 27 mm. longa. Flores subconcolores. Folliculi 24–30 mm. longi.)

**A. alpina' Lin.**

33. Calcaria  $\frac{1}{2}$ – $\frac{3}{4}$  laminae longitudine.

- α. Stamina petalorum limbo 2–11 mm. breviora.  
 α. Calcaria e basi late conoidea in apicem uncinatum attenuata. Caulis 12–40 cm. altitudine. Petalorum lamina rotundata v. oblonga et apice obtusa. Flores caerulei v. discolors. Sepala saepe plus 30 (16–45) mm. longa.

**A. glandulosa' Fischer.**

- β. Calcaria gracilia. Caulis 50–70 cm. altitudine. Lamina rotundato-truncata. Flores violacei. Sepala minus 30 mm. longa.

**A. vulgaris' Lin. Bernardi' Gren.**

- b. Stamina limbum fere attingentia v. superantia.  
 α. Petalorum lamina apice rotundato-truncata v. plane truncata.  
 α. Caulis 3–25 cm. altitudine, 1- (rarissime 2-) florus, saepissime unifolius. Flores caerulei v. petala purpurea. Sepala ovata apice obtusa.

**A. nivalis' Falc.**

- β. Caulis 40–70 cm. altitudine, foliosus, 2- v. pluriflorus. Flores albi v. straminei v. pallide purpurei. Sepala ovato-lanceolata v. elliptico-oblonga breviter acuminata.

**A. Moereroftiana' fragrans'.**

- γ. Caulis 12–30 cm. altitudine, saepius pluriflorus et foliosus. Sepala saepissime anguste ovato-lanceolata longe acuminata. Flores purpurei v. luridi.

**A. pubiflora' Wall.**

3. Petalorum lamina apice rotundata.

*A. pubiflora*' Wall.

\* B. Calcaria recta vel leviter incurva neque uncinata.

2. Petalorum lamina fere 6 mm. longa. Calcar lamina plus duplo longius.  
(Stigma glandulosa pubescens albidum folium)

*A. grata*' Maly.

3. Lamina 9-45 mm. longa. Calcar laminae subaequilongum v. sesqui-longum, rarius lamina fere duplo brevius, rarissime duplo longius.

a. Stamina limbo 2-6 mm. breviora. Flores caerulei.

1. Petala apice saepissime rotundata. Sepala 14-27 mm. longa. Folliculi subcylindrici, 8-15 mm. longi.

a. Foliolum medium foliorum basilarium biternatorum triangulariter cuneato-obovatum v. cuneato-deltoidaeum, latitudine  $\frac{1}{4}$ - $\frac{1}{2}$  longitudinis. Foliola distantia v. approxinata. Caulis petioli petioli saepius hirti v. pubescentes.

*A. viscosa*' Gouan.

2. Foliolum medium fol. bas. reniforme v. late rhombeum, latitudine  $\frac{1}{4}$ - $\frac{1}{2}$  longitudinis. Foliola sese attingentia v. saepius sese obtegenda.

*A. pyrenaica*' DC.

b. Petala apice rotundato-truncata. Sepala 32-45 mm. longa. Folliculi e basi ovoidea attenuati 25-30 mm. longi.

*A. alpina*' Lin.

b. Stamina petalorum limbum fere attingentia v. superantia. Flores haud raro discolores, sepala saepe albida v. straminea v. violacea.

a. Petalorum lamina apice rotundata.

a. Flores concolores. (Semina minutissime punctulata, fere laevia).

aa. Sepala oblongo-lanceolata (15-20 mm. longa) petalaeque colore lacteo.

*A. lactiflora*' Kar. Kir.

bb. Sepala ovato-lanceolata rarissime ovata (12-28 mm. longa). Flores purpurei v. luridi.

*A. pubiflora*' Wall.

2. Flores discolores, sepalis ac calcaribus violaceo-caeruleis, petalis albidis. Semina granulata.

*A. Ottonis*' Amallae" Heldr.

b. Petalorum lamina rotundato-truncata.

aa. Semina granulata. (Caulis 35-70 cm. alt., foliis bas. biternatis, sepalis calcaribusque lacte caeruleis, lamina pet. albida).

*A. Ottonis*' typica" Orph.

2. Semina microscopice punctulata, fere laevia.

aa. Latitudo folioli terminalis fol. bas.  $\frac{1}{4}$ - $\frac{1}{2}$  longitudinis. Folia basilaria vix unquam simpliciter ternata.

aa. Flores saepius 3-9. Sepala apice cuneato-acutata v. acuminata. Calcaria subulata. Pet. lamina apice rotundato-truncata.

aa. Flores caeruleo-violacei, concolores.

*A. vulgaris* Lin. *rebtfoornu* P. B."

bb. Flores concolores albidii v. straminei, v. discolores sepalis dilute violaceis petalis ochroleucis v. caeruleis v. purpureis.

*A. Moorcroftiana*' Wall.

- bb. Flores solitarii v. raro 2. Sepala apice obtusa. Calcaria crassiuscule conoidea v. subcylindrica v. saccata. Pet. lamina apice truncata et sinuata, v. retusa, v. emarginata. \*

A. nivalis' Falc.

- bb. Latitudo folioli medii fol. bas. fere  $\frac{1}{2}$  longitudinis. Folia saepe simpliciter ternata. (Sepala caerulea, pet. lamina ochroleuca.)

A. leptogeras' Fisch. et Mey.

*Aquilegia* autem inter *Ranunculacearum* genera recentior videtur esse. Quae sententia non solum insigni illa mutabilitate formarum atque summa omnium inconstantia notarum quibus rerum herbariarum periti ad species discernendas uti consueverunt, sed etiam subspecierum per regiones boreales orbis terrarum distributione comprobatur. Nam varietate varia *Aquilegiae* vulgaris typicae excepta, nulla subspecies vel varietas montuosis Asiae communis est cum regionibus Europae occidentalis, atque una tantum species, *A. glandulosa*, non solum in iugis Sibiriae sed etiam in montibus transsilvanicis nascitur. *Aquilegia* quidem atrata in saltibus thianshanicis gigni dicitur, sed veri simile est stirpem illam in varietate Karelinae *Aquilegiae* vulgaris adnumerandam esse. Neque dubitandum est quin stirpes illae himalaicae, quae morphologice ab *A. pyrenaica'* et *A. alpina'* nullo modo differunt, varietates existimandae sint *Aquilegiae* nivalis' et Moorcroftianae', nec proxime connexae cum formis illis in Alpibus et monte pyrenaeo natis.

Atque propter artissimam omnium *Aquilegiarum* cognationem vix difficile esse dixeris historiam generis vestigare. Et certum quidem est nectaria formae illius praeae, ex qua omnes species *Aquilegiae* ortae sunt, ecalcarata fuisse, cum non solum flores monstrosos *A. vulgaris* ecalcaratas in hostis nasci videamus, sed etiam, quod maximi argumenti est, species una rite ecalcarata a Potanino ex Kansu allata sit. Sed inter stirpes generi *Aquilegiae* propinquas vix ullae sunt quae tam insignem *Aquilegiae* ecalcaratae vel *Aquilegiae* brevistylae similitudinem praeseferant quam *Isopyri* species nonnullae asiaticae et americanae. Et petala gibba *Aquilegiae* ecalcaratae petalis quarundam formarum *Isopyri* microphylli et grandiflori simillima, sed duplo vel triplo maiora; haec interdum a vera basi aperta minimeque bilabiata, obovato-oblonga, dorso vix minus gibba quam petala *A. ecalcaratae*, apice retusa v. emarginata, nervis interdum ramosis. Et quamquam nectaria *Aquilegiae* brevistylae, quae statura foliorumque figura *Isopyro* biternato quam proxime accedit, calcarata sunt, eorum laminae haud raro more *Isopyri* grandiflori v. anemonoidis apice sunt emarginatae. Carpella autem *A. brevistylae* interdum glabra sunt et nucleus ovulorum binis integumentis vestitus, uti sunt in gregē *Isopyrorum*.

Quarum rerum considerationem sequentibus nobis licitum concessumque sit speciem illam antiquam, cui *Aquilegiam* cascadem nomen dicere liceat, quasi construere atque aedificare. Stirps erat altitudine mediocri, foliis biternatis, floribus parvulis, sepalis quinque, nectariis subconcavis gibberis apice emarginatis, filamentis staminum intimorum lanceolatis antheris parvis terminatis, carpollis quinque glabris, seminibus laevibus. Hanc speciem terra genuit illa, qua Asia et America olim iuncta erant. Ex ea natae sunt species illae praeae asiaticae atque americanae: primum *Aquilegia calcarata*, tum, gibbera in calcar producta, *Aquilegia parviflora* et *Aquilegia brevistyla*. Cum autem initio huius aevi planities Sibiriae et Europae septentrionalis o mari glaciali emersissent et caelum mitius fieret, species illae praeae primum varietates tres ediderunt: unam carpellis glabris (*A. sibiricam*), alteram (*A. viridiflorum*), *Aquilegiae parviflorae* proximam, sepalis vix praeter nectaria eminentibus sed carpellis hirtis, tertiam sepalis petalisque valde variabilibus, carpellis autem semper hirtis. Tertia haec species parens fuit duarum gregum, quarum una, sepalis lanceolatis erecto-patulis alabastris subcylindricis, regionum illarum incola siohat quae a mari gobiensi ad orientem solem spectabant; altera autem non solum per regiones Asiae borealis ac centralis, sed etiam per Europam totam usque ad montem Atlautem lato diffundebatur. Mirifica vero eius facultas ad varias condiciones caeli loci insectorumque se accommodandi. Nam flores mediocres stirpium in locis silvaticis demissioribus ortarum in montibus altioribus saepe maximi atque speciosissimi evadunt, ut facilius apes papilionese procul ad se alliciant. In locis humidioribus autem caules petioli foliolaque saepe magis villosa vel hirta, atque in stillicidiis rupestribus conspicuo glanduloso-pilosa.

Ab *Aquilegia* autem vulgari mutabilitate nequaquam superata est grex illa quae, orta, ut videtur, in Asia orientali, per Alashkam et Montes shoxos diffusa usque ad mare atlanticum et in Americam centralem pervenit.

Vix dubitandum esse opinamur quin *Aquilegia canadensis* originem trahat a parente varietatis illae *Aquilegiae formosae* cuius imaginem Planchon\*) in tabula nomine *Aquilegiae arcticae* depinxit; verisimile autem est *Aquilegiam arcticam*, quae vix a varietate kamtschatica a Fischero descripta calcaribus brevioribus videtur differe, profectam esse a forma illa praeae Asiae orientalis, quae, immigrans in regiones mandshuricas et sinenses in *Aquilegiam oxysepalam* commutata est. Nam utrum stirps illa, cui *Aquilegiam hybridam* Sims dixit nomen, hybrida fuerit an species vera nescio; stirpes vero, quas Ledebour scribit e semi-



nibus davoricis in horto dorpatensi natas esse, vix dixeris hybridas fuisse Aquilegiae vulgaris et Aquilegiae canadensis. Folia autem et alabastrum figura et sepalorum directio et color floris, uti depicta sunt in tabula Simsii, omnino sunt Aquilegiae oxysepalae, neque similitudo Aquilegiae hybridae cum Aquilegia arctica et A. canadensi minus insignis.

At vero quanta nectariorum est mutabilitas in Aquilegia formosa! Nam varietas arctica, in tabula picta a Planchon lineis descripta et a Bongard in insula Sitcha lecta, non solum sensim sensimque in Aquilegiam truncatam, varietatem eximiam, transit, sed calcaria stirpium in horto kewensi cultarum gracillime evadebant atque calcaribus Aquilegiae caeruleae simillima. At Ledebour in annotatione ad Aquilegiam formosam discrimen huius speciei et Aquilegiae canadensis partim in longitudine calcaris cum lamina comparata ponit; dicit enim de A. formosa:—'calcaribus rectis lamina truncata quadruplo longioribus genitalia subaequantibus, sepalis ovato-lanceolatis patentissimis genitalia calcariaque superantibus,' et de A. canadensi:—'calcaribus rectis lamina truncata duplo longioribus, genitalia subaequantibus, sepalis ovatis calcaribus genitalibusque brevioribus, stylis demum exsertis.' Vidimus tamen specimina A. canadensis var. typicae calcaribus lamina quintuplo longioribus et sepalis florum apertorum androecio sublongioribus.

Atque formae illae cultae, quae cum stirpibus kamtschaticis quoad calcaris longitudinem cum laminae mensura comparatam congruere videntur, ab Aquilegia chrysantha non distinctae nisi notis, ut videtur, vilibus. De staminibus Aquilegiae caeruleae ante diximus. Mensura autem calcaris cum limbo nectariorum comparata vehementer variat; lamina enim nunc vix vicesima pars calcaris nunc calcare ferme sesqui longior. Forma quoque limbi petalorum vix ad species discernendas apta; nam in exemplaribus in horto kewensi cultis lamina a medio versus apicem attenuata est,\* quod vidimus etiam in Aquilegia truncata; in varietate arctica autem Planchonii et in varietate typica Fischeri nectariorum lamina est apice truncata. Aquilegiae igitur americanae idem spectaculum praebent atque Aquilegiae asiaticae et europaeae: omnes enim partes, quae quidem ad praegnationem ope insectorum factam aptae sint, eximie mutabiles esse, praesertim cum pollen etiam sine adiumentis extornis et adventitiis in stigmata eiusdem floris pervenire potest. At vero cum meminimus Aquilegiam arcticam, formosam Fischeri, truncatam ad eandem speciem pertinere atque stirps illa in tabula 6552 Bot. Mag. depicta, non possumus non concludere Aquilegiam caeruleam et chrysantham quoque ad eandem gregem esse redigendas.

\* Vide etiam Bot. Mag. tab. 6552.

† Ledebour, Flora rossica vol. I.

**Discrimen** autem *Aquilegiae Skinneri* et *A. canadensis* in magnitudine florem positum est. Sepala vero *A. canadensis* typicae nunc vix 12 mm, nunc fere 24 mm longa, ac magnitudinem florum notam demonstravimus esse maximè dubiam in *Aquilegiis* himalaicis. Quapropter credimus fore ut formas medias inter *A. canadensem* et *A. Skinneri* in Mexico boreali inveniantur.

Insigne unum èt solum quod, praeter indumentum carpellorum, magis constare reperimus in cognatione *Aquilegiae* vulgaris est directio sepalorum; nam cum in plerisque subspeciebus sepalia patentia vel patentissima sint, in *Aquilegia oxysepala* sepalia saepissime erectopatula reperiuntur, vix unquam subpatentia. Non est hoc tamen semper signum certum speciei bonae; nam sepalia *A. canadensis* typicae interdum magis patent quam solent in stirpibus plurimis, neque sunt, ut videtur, semper patentissima in *Aquilegia chrysantha*. Quodsi hanc notam putemus ad species internoscendas non satis habere facultatis, ac si reliquorum inconstantiam signorum in mente agitemus, harum rerum cogitatione coactis nobis, quamvis invitis, concedendum esse videtur, formas omnes americanas ad duo species referendas esse: unam, *Aquilegiam brevistylam*, quae vinculis propinquitatis maximo cum *Aquilegiae sibiricae* coniuncta est, alteram quae, magis cognata *Aquilegiae oxysepalae*, *Aquilegiam formosam*, truncatam, caeruleam, chrysantham, flavescensem, canadensem, *Skinneri* amplectitur. Hac sententia perducti *Aquilegias* americanas hoc modo disponendas esse existimamus.

(1). *A. brevistyla* Hook.

(2). *A. canadensis* Lin.

subsp. I. *A. formosa* Fischer.

subsp. II. *A. caerulea* James.

subsp. III. *A. flavescens* Wats.

subsp. IV. *A. canadensis typica* Lin.

subsp. V. *A. Skinneri* Hook.

Si vero directioni sepalorum maiorem ad species discernendas vim tribuamus, formas americanas hoc modo disponere licuerit.

(1). *A. brevistyla* Hook.

var. a. *vera*, carpellis pubescentibus.

var. β. *leiocarpa* P. B., carpellis glaberrimis. Montes saxosi.

(2). *A. formosa* Fischer.

Subsp. I. *vera*.

var. a. *arctica* Planch., nectariorum lamina truncata, calcaribus subinfundibuliformibus lamina sesqui v. subduplo longioribus.

var. **β. kamtschatica** P. B., lamina truncata, calcaribus lamina subquadruplo longioribus.

var. **γ. truncata** Fisch., lamina truncata v. apicem versus obtusa calcaribus conicis vel crasse subulatis multo brevioribus.

var. **δ. saxicola** P. B., lamina rotundato-ovata apice obtusa calcaribus subulatis brevioribus.

*Subsp. II. caerulea* James.

var. **α. macrantha** Hook., floribus albidis v. plus minus caeruleis v. ochraceis.

var. **β. chrysantha** A. Gray, floribus aureis.

(3.) **A. flavescens** Wats.

(4.) **A. canadensis**.

*Subsp. I. typica.*

var. **α. vera**, sepalis 10–24 mm. longis, calcaribus lamina duplo v. quintuplo longioribus elongato-subinfundibuliformibus.

var. **β. Fendleri**, sepalis fere 9 mm. longis, calcaribus elongatis gracilibus.

*Subsp. II. Skinneri* Hook.

Aquilegiam Skinneri vero, dum formae mediae inter hanc formam et *A. canadensem* desunt, speciem propriam sumero licebit.

Adicimus tabellam analyticam ad species subspeciesque americanas determinandas.

I. Calcar crassiusculum subulatum manifesto incurvum laminae aequilongum v. paullo brevius. Sepala 12–18 mm. longa. Stamina petalorum limbo breviora. Carpella glabra v. pubescentia.

**A. brevistyla** Hook.

II. Calcaria aut elongato-infundibuliformia lamina paullo v. permulto longiora recta v. leviter incurva aut gracillime subulata aut conica. Stamina saepius ultra limbum petalorum eminentia vel, si limbo breviora, sepalis 2 cm. longa v. longiora. Carpella hirta.

A. Sepala patentia v. patentissima.

1. Calcaria gracillime subulata.

a. Filamenta in columnam subcylindricam sociata, stamina conspicue exserta. Flores aurei v. calcaria sepalaque plus minus lateritia v. rubra.

**A. formosa** Fisch., *subsp. vera*, ex parte.

b. Filamenta plus minus divergentes, haud raro in capitulum subglossum congesta, v. si subparallela, stamina pet. lamina breviora v. eam fere aequantia. Petalorum lamina apice truncata. Flores albi, ochroleuci, caerulei, aurei. (Calcaria 25–70 mm. longa.)

**A. caerulea** James.

2. Calcaria elongato-infundibuliformia. Columna staminea cylindrica petala multo superans.

a. Calcar laminae usque v. permulto longius. Sepala calcaribus lateribus v. rubra.

*A. formosa* Fisch. subsp. vera ex parte.

b. Calcar lamina vix longius. Flores flavi. (Sepala 12-18 mm. longa.)

*A. flavescens*, Wats.

B. Sepala erecta, erecto-patula v. vix patentia.

21. Calcaria 15-25 mm. longa. Folliculi fere 2 cm. longi.

*A. canadensis* Lin.

22. Calcaria fere 4 cm. longa. Folliculi 3-3.5 cm. longi. (Sepala virentia.)

*A. Skinneri* Hook.

Nunc progrediamur ad species, quas quidam accipimus, rite definiendas.

Ne tamen nimia nominum ac synonymorum stirpium americanarum confusio exstiterit, Aquilegium formosam et flavescens ab Aquilegia canadensi sciungemus, quae res necessitatem nobis affert, si quidam nobismet ipsis velimus constare, Aquilegia oxysepala ab Aquilegia vulgari separandae.

#### I. *Aquilegia ecalcarata* Maxim.,

sepalis subpatentibus l v. fere 1.5 cm. longis, nectariis gibbis nec calcaratis, lamina apice complanata fere  $\frac{3}{4}$  sepalorum longitudine, carpellis hirtis. (Vix ab *A. parviflora* separanda.)

#### II. *Aquilegia parviflora* Ledebour,

sepalis patentibus 1-1.4 cm. longis, nectariis breviter calcaratis, lamina apice obtusa concava sepalis subduplo brevior, carpellis hirtis.

#### III. *Aquilegia viridiflora* Pallas,

sepalis patentibus v. patulis (virescentibus) 10-18 mm. longis, nectariorum lamina subcomplanata subbrevioribus v. fere  $\frac{1}{4}$  eius longitudine, calcaribus rectis v. apice incurvis, carpellis hirtis.

#### IV. *Aquilegia brevistyla* Hooker,

sepalis patentibus 12-15 cm. longis, nectariorum lamina apice haud concava sepalis subduplo brevior, calcaribus crasse subulatis modice incurvis fere laminae longitudine, carpellis glaberrimis v. pubescentibus.

#### V. *Aquilegia sibirica* Lam.,

sepalis patentibus v. patentissimis 13-25 mm. longis, nectariorum lamina apice non concava  $\frac{1}{4}$ - $\frac{1}{2}$  sepalorum longitudine, calcaribus subulatis apice hamatis, carpellis glaberrimis v. ad suturam ventralem minute puberulis.

#### VI. *Aquilegia vulgaris* Lin.,

sepalis patentibus v. patentissimis nectariorum lamina saepissi-

me manifesto longioribus, alabastris (calcaribus neglectis) ovoideis v. ellipsoideis, nectariorum lamina apice non concava calcaribus rectis v. uncinatis forma varia, carpellis hirtis.

VII. *Aquilegia oxysepala* Trautv., \*

sepalis erecto-patulis, nectariorum calcaribus hamatis (vix unquam rectis) subulatis lamina sepalis manifesto brevior sublongioribus, carpellis hirtis.

VIII. *Aquilegia canadensis* Lin.,

sepalis erectis v. erecto-patulis 9–25 mm. longis, nectariorum lamina longioribus, calcaribus lamina duplo v. quintuplo longioribus elongato-subinfundibuliformibus v. gracilibus, carpellis hirtis.

IX. *Aquilegia flavescens* Wats.,

sepalis plus minus reflexis nectariorum lamina paullo longioribus, calcaribus lamina vix longioribus elongato-subinfundibuliformibus subincurvis, (floribus flavis), carpellis hirtis.

X. *Aquilegia formosa* Fisch.,

sepalis patentissimis v. subreflexis rarius patentibus nectariorum lamina manifesto longioribus, calcaribus aut crassiuscule conicis lamina multo longioribus, aut elongato-subinfundibuliformibus lamina sesqui v. subduplo longioribus aut gracillime subulatis rectis v. modice incurvis, carpellis hirtis.

*Aquilegia* vero volubilis *Maack* mihi plane ignota.

Cognitiones autem specierum generis *Aquilegiae* in tabula nostra prima monstrare conati sumus; in tabula secunda affinitates gregis *Aquilegiae* vulgaris exhibentur; in tertia denique propinquitates formarum americanarum indicavimus.

Atque ut in rorum, de quibus quaesierimus, repetitione per capita decurramus, haec nos existimamus demonstravisse:—

(1) indumentum caulis et foliorum ad species generis *Aquilegiae* discernendas non usui esse;

(2) folia basilaria ac caulina quoad divisiones foliolorumque figuram et magnitudinem ita variabilia esse ut ad species seiungendas non valeant, quod quidem saepe accidit in generibus, quae constant ex stirpibus, quarum folia sunt composita;

(3) partes eas stirpium, quae in praegnatione ope insectorum facta auxilio sint, saepe mutabilitate maxima affectas esse, ut notae ab iis sumptae, uti magnitudo colorque florum, nectariorum forma, mensurae comparatae nectarii ac staminum atque carpellorum, directio partis styli stigmatosae, haud raro dubiae sint minimeque certae;

(4) omnes *Aquilegias* artissima naturae colligatione consociatas esse, quod efficiat ut formae hybridae quam facillime ex formis diversis procreentur, quae res notissima est hortulanis;

(5) stirpes omnino similes non solum ex eadem forma sed etiam ex diversis in locis longinquis atque disiunctis nasci posse, sicuti: *A. glandulosa* ex varietate quadam *Aquilegiae vulgaris* in montuosis Sibiriae ac Transsylvaniae; aut *A. pyrenaica* ex *A. Bertolonii* in monte pyrenaeo et ex *A. nivali* in terra gilgitensi; vel *A. incunda*, ut videtur, ex *A. vulgari* in Sibiria et ex *A. nivali* in Kashmiria; vel *A. alpina* ex *A. Bertolonii* vel ex varietate nigricanti *Aquilegiae vulgaris* in Alpibus et montibus appenninis, et ex *A. Moorcroftiana* suaveolenti in Himalaya centrali;

(6) varietatem eandem, cum in locis diversissimis orta sit, in uno loco saepius stabiliorē esse quam in reliquis, sicut *Aquilegia pyrenaica* satis constat in Pyrenaeis, sed maximo fluxa est in montuosis altissimis Himalayae occidentalis;

(7) verisimile esse eandem formam interdum in locis diversissimis inveniri quod varietas recentior in figuram speciei parentis translata sit (atavismus), sicuti stirpes indicae *Aquilegiae vulgaris* verno ex *Aquilegia pubiflora* natae videntur esse.

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- 1-3. *Isopyrum grandiflorum*, ♀, *Afghanistan*.
  - 4-8. *Isopyrum microphyllum*, ♀, *Himalaya bor. occ.*
  9. *Idem*, ♀.
  10. *Aquilegia parviflora*, *Sibiria*.
  11. *Isopyrum grandiflorum*, ♀, *Vallis Kurram*.
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  30. *eadem*, *himalaica*, *Gurhwal*.
  31. *A. glandulosa* 'typica Fischeri, Sibiria.
  32. *A. glandulosa*, *Sibiria*.
  33. *A. Moorcroftiana* 'suaveolens'', *Lahul*.
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- 56-58. *A. Moorcroftiana' suaveolens''*, *Ladakh*.  
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74. Apex parastemonis *A. Karelini''*.  
75. Parastemonis *A. pubiflorae'*.  
76. iidem, aucti.  
77. Parastemonis *A. Moorcroftianae'*, aucti.

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